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TABLE OF CONTENTS.

Mental Hygiene. By John P. Gray, M. D., LL. D.,.....	307
Association Reminiscences and Reflections. By Andrew McFarland, M. D.,	342
Hydrate of Chloral, Report on. By Carlos F. MacDonald, M. D.,.....	360
Case of Helen Miller, Self-Mutilation, &c. By Walter Channing, M. D.,	368
On the so-called Motor Centers. By Prof. M. Schiff. Translated by Theodore Deecke,	379
Proceedings of the New England Psychological Association,.....	398

BIBLIOGRAPHICAL:

Reports of American Asylums, 1876-77,.....	403
Transactions of Societies, Reports, Pamphlets,.....	415
Care of the Chronic Insane in the State of New York,.....	420

SUMMARY:

Resignation of Dr. J. F. Ensor,	423
Re-election of Dr. John H. Callendar,	423
Appointment of Dr. William W. Strew,	423
Appointment of Dr. John C. Hall,....	423
Appointment of Dr. T. Mortimer Lloyd,	424
Appointment of Dr. John G. Park,.....	424
Appointment of Dr. Enoch Q. Marston,.....	424
Removal of the Worcester Lunatic Hospital,	424

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MENTAL HYGIENE.*

BY JOHN P. GRAY, M. D., LL. D.,

Medical Superintendent New York State Lunatic Asylum, Utica.
Professor of Psychological Medicine and Jurisprudence in Bellevue Hospital
Medical College, New York.

The classical phrase, "*Mens Sana in Corpore Sano*," is a general and true expression of the related condition of the mind and body for the best functions of human life. Health of body has, in all times, been regarded as essential to the best balance and culture of the mind, and to the most effective application of its activities to the concerns of the world, whether educational or practical, whether in the realm of Philosophy or in the lower plane of Manual Labor. This is true, notwithstanding that there are notable exceptions where great intellectual activity and application have been conjoined with feeble physical structure, and even disease.†

Indeed we must start with the proposition that what is now denominated Mental Hygiene, is practically inseparable from Physical Hygiene. It is comparatively

* Delivered before the International Medical Congress, at Philadelphia, September 8, 1876.

† Dr. Godman, Dr. Robert Hall, the historian Prescott, and numerous other instances might be cited.

a new application of the word hygiene. Dr. Maudsley, in his Gulstonian Lectures for 1870, says: "The time has come when the immediate business which lies before any one who would advance our knowledge of mind, unquestionably is a clear and searching scrutiny of the bodily conditions, of its manifestations in health and disease." Again, "as physicians, we can not afford to lose sight of the physical aspects of mental states, if we would truly comprehend the nature of mental disease, and learn to treat it with success. The metaphysician may, for purposes of speculation, separate mind from body, and evoke the laws of its operation out of the depths of self-consciousness; but the physician who has to deal practically with the thoughts, feelings and conduct of men, who has to do with the mind, not as an abstract entity, concerning which he may be content to speculate, but as a force in nature, the operations of which he must patiently observe and anxiously labor to influence, must recognize how entirely the integrity of the mental functions depends on the bodily organization, must acknowledge the essential unity of mind and body."*

And the great change which has taken place in the views regarding insanity, within the memory of men now living, transferring it from the domain of mere metaphysics, to the jurisdiction of medical science, as a recognized physical disease, witnesses to the same thing. But notwithstanding this intimate connection of physical with psychological conditions, in the study of mental hygiene, it will not be expected that I should go into the former, or into the field immediately related, of Preventive Medicine, as that whole subject has been assigned to my learned *confrère*, Dr. Bowditch, who has already explored and expounded it in the most exhaust-

* Body and Mind, pp. 1, 108.

ive and satisfactory manner. My range of thought must, therefore, rather be general, and less limited by professional metes and bounds than if it were a strictly medical or a purely psychological one, and may, therefore, not prove as satisfactory to my professional brethren. I shall also be pardoned, I trust, on this National Centennial, if I refer to our own nation largely in elucidation of principles, and for practical illustrations.

This whole subject was formerly confined within the range of philosophy alone. In the days of ancient civilization, before real science was born, when the oracle "know thyself," had only a subjective metaphysical meaning, men like Plato and Cicero placed all mental hygiene in the delights of literary conversation and philosophizing. The Academic Groves were the resorts of dreamy contemplation of a State and a World that never could be realized. The Tusculan Villa was a refuge from the clamor of Senates and the wrangles of the Forum, where Cicero and his friends sought their *otium cum dignitate*, secure from the jealousies and conspiracies of politics, whether Cæsar or Pompey should triumph. They knew little of the physiological functions of the body, while they indulged in their acute and poetical, and sometimes touching, speculations upon the immortality of the soul; but modern science, in studying and dignifying the visible temple of the immortal spirit, has only confirmed and followed in the track of Christianity, which first promised to the human body an equal dowry of immortality with the human soul. The Resurrection staggered the Stoics and Epicureans; but it is at least the best warrant in the diploma of modern medical science, now, perhaps, somewhat disposed to spiritualize even matter itself, to endow it with "the promise and potency of every form

and quality of life." On the other hand, the expression "mental physiology" has been coined to identify the study of mind with that of body, and some would even attempt to resolve all psychology into physiology.

Mental hygiene may be variously classified, but, as a whole, it embraces all that relates to the development, exercise, and maintenance of mental activity in individuals, communities and nations, and must, therefore, be considered from an individual, social, and national point of view. It involves education, social culture, religion and national life. With the individual, it begins at birth, and takes cognizance of even the constitutional tendencies, under laws of heredity, as well as of all the circumstances of subsequent life. To the individual then, in a general way, it consists in that general training which will most perfectly and harmoniously develop the body and the mental faculties for the duties of life. At the outset, therefore, on this point, we are met with the questions, who is the individual? What has he to do as an occupation of life? However we may settle on general principles, the rules for individuals must be special. Practically, we must consider classes and conditions. The occupation and pecuniary condition of parents; their culture, social status, and surroundings; clothing, food and climate; proximity to schools, churches, and places of amusement; density or sparseness of population; laws, government, etc., must all be considered as among the efficient and constantly modifying conditions of any system of hygiene proposed.

Thus, it will be seen, it is a many sided and all-embracing subject, evidently too vast for one, in an address of an hour, to do more than simply glance at its main features. Though it may be looked at from various stand-points, as men contemplate life, its duties, objects and ends, from the work they are doing in the world,

the fundamental ideas must be the same, to lead to any practical results. The views which the minister, the lawyer, the teacher, the scholar, the physician, the scientist and the statesman, may take, will be directed, or colored somewhat, by their field of observation, and their bias of education; but on general principles they must be in accord. Mental hygiene covers all the broad field of human energy, embracing all the professions and every branch of industrial life. It looks after man's moral as well as his intellectual nature, for the two can not be separated. It enters into his domestic and social conditions, and follows him in his duties as a citizen.

I. It first looks at *human nature*—at a man as he is born—his utter helplessness, his passions, his needs, physical and mental, and his social, moral, and spiritual wants, and then must devise a scheme for his development. Is this an easy task? The science that would do this perfectly, must, from the realm of physiology, single out the laws written on his members, and harmonize them, in their development and action, with the laws of the spirit written on the psychological side of his nature, and put these in harmony with the laws of nature around him, in whose realm he dwells, and bring all in obedience and loving accord with the eternal truths of God. Mankind has been working upon this problem ever since Adam first contemplated the tree of knowledge, in the Garden of Eden, and was sent forth to his toil and to his own reflections. It will continue to be a problem, for human nature will not change; the human passions, in all their wide scope, are not to be obliterated under culture, but regulated and controlled. Indeed, the discipline of the passions is, in a large measure, the moral side of this great question. Except for speculative study, there is no separation of the in-

tellectual and moral elements, and the regulation of the passions and their proper development become a part of education.

A fundamental principle, therefore, in mental hygiene, is harmonious, intellectual and moral culture, under the recognition of man's essential nature as a spiritual being. This cultivation is imperative, in order that man may be able to recognize, not only his own needs, but his relations to others; that he may, while taking care of himself, be able to see that he forms an integral part of a social organization absolutely essential for his own welfare. The machinery for the preservation, harmony and elevation of social life, must reach to every class and condition; otherwise, the antagonistic elements would impede, if not prevent, all progress, and engender discord.

Common customs, common schools, and common laws, are the most fundamental, and also the most powerful, equalizing agencies in the great machinery of the politico-social life of a people. Through these means the rich and poor meet on common ground, and acquire a certain degree of unity in physical and mental training, and a certain likeness of character and harmony of thought on the great questions of education, morals, politics, and religion, highly favorable to stability, both social and national. Thus great general principles of government become more readily and universally received, and there are left for difference and discussion only the methods and forms of development and application. Still, these means only partially reach into the home life of individuals, where influences are constantly limiting and modifying development, both physical and mental. Indeed, however distinctly the laws of physical and mental hygiene may be stated, like fundamental propositions in law and morals, their individual appli-

cation may be difficult. The circumstances surrounding and controlling, may not only modify, but entirely forbid, their application; and persons, families, and whole communities, do thus drift away from any regulated plan of life, or any reasonable principles of action, as the history of moral epidemics, not only in the past but in the present, would abundantly show. Poverty and ignorance, the breeders of vices and crimes, and the enemies of culture, may render all principles nugatory, except as they are enforced by law. And in this direction political economy is a most important element in the study of mental hygiene, in its broad application to the interests of mankind.

Thus we see in hygienic science the ideas which lead to the study of pauperism and crime, and the care of the dependent classes, whether made so by disease or misfortune; to the origination of means for preventing social evils of every character; to the enactment of laws for the regulation of morals by limiting vices, as in licensing prostitution and the sale of intoxicating drinks; laws for the suppression of gambling, and providing punishment for the publication of obscene literature; laws to prevent the spread of contagious and infectious diseases; and also that higher and grander step, laws for compulsory education, thus compelling the elevation of the masses by undermining ignorance and superstition, the prolific sources of human misery and degradation. This is itself a wide field of inquiry; a field where Christianity and moral hygiene, social and medical science, and sanitary police, must join hands with education and law, to lift into social order the victims of evil and hereditary influences which they are powerless in themselves either to avoid or to conquer.

That mental activity is highly favorable to physical health and development, when systematically directed

into useful channels, need hardly be argued in this day. Intellectual labor seems, as a rule, to contribute to longevity. It was formerly a sort of proverb, that "one of the rewards of philosophy is long life." The ancient philosophers, especially the Peripatetics, pursued their studies and imparted their instructions largely out of doors, amid the varied objects of nature. The amount of physical exercise taken in the open air was a remarkable feature in the life of antiquity, even among its scholars; and we have among them numerous examples of great longevity in men of intellect. Homer, Pythagoras, Plutarch, Thales, Galen, Xenophon, Carneades, Sophocles, Zeno, Hippocrates, Xenophanes, Democritus, and others, reached the age of ninety and upwards, while the majority of such men passed the limit of three-score and ten.

In the early days of this Republic, with simplicity and plain living, we find the same rule holding good. Chief Justice Marshall and Thomas Jefferson reached eighty-four; Benjamin Franklin and John Jay, eighty-five; James Madison, eighty-seven; and John Adams ninety-one. All these men certainly had not only vast intellectual labors to perform, but great burdens of care, anxiety, and responsibility to carry, and even serious privations to encounter; and we might greatly lengthen this list. Bearing on this point I have recently been informed by Governor Seymour, of New York, who has given great attention to the history and character of the North American Indians, that the more intelligent tribes were not only the dominant and conquering ones, but that they afterwards met the struggle with civilization more successfully than those giving themselves up wholly to physical exercises; that they also maintained a higher physical and mental standard, and lived to a greater age; that these tribes, this day, number nearly

as many as in the early history of this country; that they maintain their language, and largely their simplicity of life, in the midst of civilization.*

The ancient gymnasia, as well as the modern signification of the word gymnasium, bear witness to the sense of the importance of combining mental and physical culture. Mental culture is a powerful influence in developing the symmetry of the bodily organism, the tone and expression of the face, the organs of special sense, and harmony of co-ordinating movements of the whole body. One can see this illustrated in our common schools at any time. The power of attention in the majority of young children, in any community, is not much aroused in ordinary life, and they often look dull and stupid on this account. These children enter school, and the direction of the attention to a few simple exercises, in common, awakens the power of attention; and soon, at the tap of a rule, the sound of a musical note, or the word of the teacher, the whole

* Extract from Appendix to Address by Gov. Horatio Seymour, of New York, at the dedication of the Kirkland Monument, Clinton, N. Y., June 25, 1873.—The superiority of the Indians of New York, over those of adjoining States, is proved not only by contemporaneous history, but by striking facts within our own observation. Their pride, heroism, and victories through a long series of years, affected not only their mental and moral characters, but even their physical organizations. * * * Beyond the evidences of their superiority to be found in history and science, we have living proofs of the vitality and vigor of the Iroquois. All others of the Indians, who once lived in the States lying east of the Mississippi, have been swept away, except a few who linger in the wild regions south of Lake Superior. None of them have withstood the power and influence of the whites, except the Iroquois. The Mohawks went to Canada, during the Revolutionary War, and most of the Oneidas removed to Wisconsin about forty years since. The other tribes still live in New York. In all their homes they are surrounded by the whites, and by high civilization, yet their numbers do not diminish at this time. For a while after the whites went among them, they fell off about one-third in population, but they now hold their number, with a slight increase in some cases. But the strength of their character is more strikingly shown by another fact. Although the Indians of New York, for three generations, have lived in the centers of civilization surrounded by a dense white population, with whom they are in constant contact, as their reservations

school instantly responds. Now, under such simple but common and systematic exercises and study, the whole expression of the school changes. The bodily organism soon conforms to the habit of attention and to the systematic mental training, and awkwardness and dullness are soon transformed into gracefulness, courtesy and intelligence.

Another common illustration is the change we mark in servants under the training of intelligent masters; under simple example and the stimulation of mind in the direction of systematic attention to duties, how quickly they are transformed, if they have any reasonable degree of capacity. The same may also be said of soldiers. Hume, in his *Essay on National Character*, says: "The human mind is of a very imitative nature; nor is it possible for any set of men to converse often together without acquiring a similitude of manners, and communicating to each other their vices as well as their virtues."

are small, yet they retain their own language, their own customs, and about one-half hold their old religious faith; yet they have white teachers and preachers who live among them. In sermons or addresses, they must be spoken to in their own tongue, or through interpreters. At the celebration of the Kirkland Monument, a deputation of Oneidas was present. They belonged to a small remnant of their tribe, numbering less than one hundred and fifty, who did not go with their people to Wisconsin. They and their fathers and grandfathers always lived in the heart of New York, in the vicinity of large cities and villages. The tract of land they own contains but a few hundred acres, yet those present at Clinton, who were well-dressed men and women, could only speak to the assembly through an interpreter. In private conversation, with a few exceptions, they speak the English with hesitancy, as their thoughts are all conceived in the Indian language. The whole world is sending representatives of every lineage, language, and nationality to our country; all of these in a few years speak our tongue and adopt our customs, and in a little time are assimilated in all respects with our people. Even the most stubborn races of Asia yield to our phases of civilization. There is not in ethnology a more extraordinary fact than the resistance for more than a hundred years of our influences by this little band of natives. The continued existence of the Iroquois, while their kindred tribes have been swept away, and their resistance to our language and mode of thought, while all other lineages in our land have been assimilated, give proof of the vigor and marked peculiarities of their race.

The great power of mental activity and attention, in modifying expression, bodily habits and movements, as well as general manners, may not only be seen in individuals and schools, but in whole communities and even nations. This is far more than imitation, it is substantial individual culture, the development of all the faculties in more or less symmetry. If we were asked the secret of the physical prowess and conquering power of the Roman people for a thousand years, we should answer it was the military education and discipline of the *whole* population from seventeen years of age, with its stern system of self-restraint and self-regulation. It was a civilization based upon the rigorous principles of the Lacedæmonians, rather than the lighter and more artistic life of Athens. The modern meaning of the word *virtue* was the *cause* of its Latin meaning, as confined to the behavior of men in battle, a stern temperance and self-control behind unflinching courage and endurance. It was once said by an American orator* that Rome was thrice mistress of the world, by her arms, her religion and her law. It is in the last only that she retains supremacy, for there is hardly a civilized nation in which the maxims of Roman civil law do not form the basis of equity. And this is all the result of the primitive training of that great people both physical and mental. The same principle was illustrated in the Puritan Cromwell's troops, the soldiers of William the Conqueror, the German armies of Frederick William in the Franco Prussian War, and conspicuously in the Revolutionary patriots of America and in their descendants, the soldiers on both sides of the contest in the recent war of Rebellion, in this country.

The more we examine into this question of mental hygiene the more it seems to resolve itself, on the men-

* Hon. Hugh S. Legaré, of South Carolina; N. Y. Review, 1841.

tal side, into a statement of the best methods of education and training to secure the highest and truest culture. And this is the line of thought which forces itself upon the mind as the true exposition of the words mental hygiene—a system of culture embracing all the interests of man in all his relations of life; education in its highest expression and broadest application; education to secure not simply a knowledge of man, and of nature and her laws, and the awakening of the faculties to a deep obedience which will make man reverence *her* in all *her* works and ways, or, in the beautiful language of Prof. Huxley, “the instruction of the intellect in the laws of nature, under which name I include not merely things and their forces, but men and their ways, and the fashioning of the affections and the will into an earnest and loving desire to move in harmony with these laws,” adding “for me education means neither more nor less than this”—clear emphatic words of which no one can mistake the meaning; but far more than this, we should demand a broad and deep culture of man which would do all this, and which would also awaken in the soul a full consciousness of its responsibility to One by whom all things exist; an education which would not only raise man to harmony with the laws of nature, but which would also raise him to obedience to the laws of God; which would make his life, real, earnest, pure and useful. To accomplish this, mental hygiene must include, therefore, not simply the mental and moral training in a general, but also in a particular way; must as well include social restraints and duties, as I have heretofore indicated, and embrace a supreme regard for the welfare of the country—a true patriotism.

It is not out of place in this centenary year of the nation, to remind ourselves that this element of moral

and religious restraint and discipline, this spirit of subjection to an overruling power above nature, was not left out of the practical life and training of its original founders. The first settlers of this continent began their conflict with wild nature, and still wilder savages, under a system of self-discipline and sense of religious responsibility, sterner even than that of the old Romans. It was indeed their *virtue* that brought them through successfully in their contest with the mightiest empire of Europe, and enabled them to lay the foundations of a governmental fabric which has been the astonishment and the study of European statesmen.

But to follow up the subject of mental hygiene in relation to individual life, it must be evident that I should have to enter into details not possible in such an address as this; I should have to take into consideration, not only the whole scope of what I have denominated, in a general way, educational means and influences, including domestic life, but also age, sex, civil condition, heredity, passions, the influence of climate, social customs, religion, etc., in all their varied relations as found in action in individuals, as also the questions of food, water, exercise, air, sleep, etc., all essential conditions and vital questions in the study of individual hygiene.

II. When we come to the question of mental hygiene in communities, we include all hygiene as to individual life, and at the same time enter the wide domain of sociology or social science. Here again we meet the great problems of education, social customs and laws, intermarriage, amusements, and indeed all the conditions of social and civil life, together with religious culture, which, though I have named it last, is really first and fundamental. In this age of books and think-

ing no man can ignore this latter point, if he would. While I have never been able to see any conflict between Science and Religion, certainly the tendencies of the times are rather to question closely their relations and their respective domains. Christianity has been challenged by science, in some quarters, and the old questions of faith, free will, responsibility, necessity, etc., are again discussed in the light of increased physical knowledge and physiological investigations, and the more advanced views of psychology.

The literature of the age itself illustrates the subject of mental hygiene. Bulwer, in his "Caxtons," gives an admirable chapter on the hygiene of books. He suggests that reading should be governed by the mental state; that it should be suited to the morbid drift of thought, or the malady of the individual. As an illustration, he speaks of the folly of attempting to amuse a man in the midst of a great sorrow; and nothing could be more in accord with sound psychology. Referring to Goethe taking up the study of science, after the death of his son, he says, "Ah! Goethe was a physician who knew what he was about. In a great grief like that you can not tickle and divert the mind." He recommends for the sorrows of middle life and old age, "bringing the brain to act upon the heart." He would thus have philosophy lead and temper the emotions and the will, and enrich the true life by contemplating the lessons of experience. He says: "For that vice of the mind, which I will call sectarianism, not in the religious sense of the word, but little narrow prejudices that make you hate your next-door neighbor because he has his eggs roasted, when you have yours boiled, and gossiping and prying into people's affairs, and backbiting, and thinking heaven and earth are coming together if some broom touch a cobweb that you have let grow

over the window-sill of your brains—what like a large and generous, mildly aperient dose of history! How it clears away all the fumes of the head * * * how your mind enlarges beyond that little feverish animosity to John Styles!" Here we have a strong hint, not only against the cultivation of a narrow range of thought, but also of the great value of that wide mental scope which takes in the interests of others, and occupies the mind in public and social interests and affairs of State.

Again he says: "I remember to have cured a disconsolate widower, who obstinately refused every medication, by a strict course of geology. I dipped him deep into gneiss and mica-schist. Amidst the first strata, I suffered the watery action to expend itself upon cooling crystallized masses; and by the time I had got him into the tertiary period, amongst the transition chalks of Maestricht and the conchiferous marls of Gossau, he was ready for a new wife." But all men and women can not grasp geology. No, but all can find, in morbid states, some serious mental occupation, if it be only their own sphere of labor, or some useful course of reading which will occupy them *out of themselves*; this is the secret, *out of themselves*. This would be substituting action for mere sentiment, a most important principle in mental culture. No lesson is more important than this, and it gives emphasis to what all experience teaches, that in the substantial realities of life are to be found the true sources of healthful mental discipline and growth; that while amusements are useful as recreation *after* toil and responsibility, they are not to be looked upon as the daily pabulum of the individual or of society; that, in excess, amusements become a kind of dissipation which creates a distaste for systematic and useful labor, and for the quiet of

home life and its practical duties, and for all rational social intercourse. Thus real life grows tame and insipid; a constant, restless desire for excitement is substituted for the deep, solid stimulus of duty, of domestic responsibility, and of that substantial mental culture which alone can give to society strength and virtue.

Sentimentalism is a tendency of the age, and has a most important place, but it should not become so dominant in social life and in education as to exhaust the mental energy in trivialities, or in mere expression of the feelings, instead of leading it to action and duty. Mere sentimentalism, whether in social life, religion or politics, demoralizes and emasculates all life and action; it is but a sensual indulgence at the expense of all vigor and energy in the practical advancement of the individual or of society. What the school of sentiment, as headed by Rousseau, did for France—the extravagances, the follies and the fanaticisms to which it led—is patent enough from French history since the Revolution of 1789. By sentimentalism is here meant that exaltation of the feelings and sympathies of the mind which is always expending itself upon unworthy objects or causes, or in the mere contemplation of those that are worthy; which Butler, in his *Analogy*, has pointed out with great psychological penetration, as mere emotional impulse, with no practical object, and no outlet for reasonable action, and which is, therefore, always enervating and destructive to mental character.

This tendency is not found simply in the immense indulgence in novel reading in these days; in the graphic and picturesque portrayal of crimes and social vices; in newspaper serials, which flood the country, and which are brought before people at every bookstand, and in all the avenues of travel; in the publica-

tion, broadcast, of the minute details of crimes, suicides, and court trials, where sickly sentiment, and social vices, and the passions of mankind, become the staple and the sum; but this tendency is also seen in science and in much quasi-religious teaching, as well as in a multitude of so-called social and humanitarian schemes which promise to lift man into a realm of thought and feeling where he will necessarily, as by a law of his being, drift to the good. This spirit of sentimentalism and restless love of novelty is only a form of skepticism, and drifts into sensualism in morals, into useless and vague speculations in science, and into transcendentalism and infidelity in religion, and in all its tendencies leads to morbid, unhealthful, and impracticable mental action.

Carlyle has said that "the proper task of literature lies in the domain of Belief, within which, poetic fiction, as it is charitably named, will have to take a quite new figure, if allowed a settlement there," and that "the exceeding great multitude of novel writers and such like, must do one of two things, either retire into nurseries, and work for children, minors and semi-fatuous persons, or sweep their whole novel fabric into the dust cart, and betake them with such faculty as they have, to understand and record what is true, of which there is, and ever will be, a whole infinitude unknown to us;" and he adds, "poetry will more and more come to be understood as nothing but higher knowledge, and the only genuine romance for grown persons, Reality."

Bulwer, with a sort of prophetic fore-glimpse over the field of these developing tendencies, speaks in the chapter already mentioned, of "curing a young scholar, at Cambridge, who was meant for the Church, when he suddenly caught a cold fit of free-thinking, with great shiverings, from wading out of his depth in Spinoza."

He failed when he tried him on the divines, but succeeded by dosing him first with chapters of faith, in Abraham Tucker's book; then strong doses of Fichte; after these the Scotch metaphysicians; ending up with a plunge bath into certain German transcendentalists. He adds, "having convinced him that faith is not an unphilosophical state of mind, and that he might believe without compromising his understanding, for he was mightily conceited on that score, I threw in my divines, which he was now fit to digest, and his theological constitution since has become so robust that he has eaten up two livings and a deanery." Now "wading out of his depths in Spinoza," is admirable. These youths are now grown quite numerous, and count among them some of the ablest scientists, who seem to be carried away by "winds," or by "doctrine," into what St. Paul styled, in his day, "science, falsely so-called." They drift so far out as to get into what they call the "unknowable" and the "unthinkable," which phrases, if the veil of time was removed, would disclose underneath the inscription of the Athenian philosophers on a certain altar, noticed by St. Paul, as he entered that learned city eighteen hundred years ago.

If we look through the history of such mental drifting, we can not but recognize it as productive of vast evil. Certainly such speculations have, as yet, made no scholar wiser or better, judging by what they have imparted to the world on the subjects of Christianity or Revelation. To be sure, we are aware that doubt has been even dignified as an essential condition of mind for the highest perception of Truth! Now the mental hygiene suggested by Bulwer was as admirable as his diagnosis. He did not strand his patient, at the start, by discussion and dialectics, but led him by a line of thought, natural to the patient, through the

regions of apparent contradictions and doubt, according to his powers of mental digestion, and finally cultured him to the full truth, and at length made a Dean of him, where he had the widest scope for faith and works, as well as a field for mental action in the highest range of human duty.

A most notable instance of this "wading out" is the case of a late president of the British Association. A brilliant man, with rare powers of analysis of physical facts and phenomena, his mind trained in this direction, he launches out on the track of the great spiritual ocean, to which he applies his physical tests, and fails. He is followed instantly by another brilliant mind in physical science, who takes down his system of astronomy to follow the wake of a new leader. These are conspicuous cases, and in other times the former might have become the founder of a sect; but instead of that, his structure falls to pieces as he contemplates it. Besides, he confesses that he has *moods*, which is equivalent to unsoundness, when moods are confessed in explanation of statements and opinions. This is encouraging, for it shows that the great and constantly increasing body of truth, extended in all directions, is not only unmoved by skepticism, but is gradually undermining it by explaining the phenomena on which it rests for the title of its existence, and is also revealing principles so much mightier and broader than man's theories of Nature and of God, that Skepticism dies in the light of Truth.

Newton, after reaching far into the arcana of nature, and finding his vast knowledge so little of the whole that he compared it to a few pebbles on the shore of the ocean, is the modest but grand symbol of true progress. He illustrates the majesty of science, and her respectful homage at the feet of the Creator. That

science which is "puffed up," and which stands ready to unveil the sanctuary, and to enter into the holy of holies and reveal the Almighty to man by chemistry and telescope, and thus find out the secret of his creation and existence, and discover the government of the moral world in a series of correlated forces, is not the science of religion which can captivate the world of to-day. However man may move in a cycle of the same truths and deceptions, in kaleidoscopic variation from age to age, God is unchangeable, and has declared Himself to be "past finding out."

So principles are eternal, though our methods change. The ideas of God, in ancient philosophy, which Pythagoras and Socrates, Plato and Cicero, saw dimly through the body of science and truth then developed, can not, at this day, be accepted as religion, though their faith and loyalty to an invisible Creative power stand unquestioned, and like a rock in the desert of centuries. Though Plato is perhaps the grandest figure standing forth in the history of human mind, his theories are but as the dawning light to the mid-day sun, in the abstract truths, developed science, and revelation of to-day. Much less can we accept Democritus and his followers. When Horace sang of the "*Integer vitæ, scelerisque purus*," he but struck a glimpse of the same truth which belongs to the province of religious culture, and which had long before been uttered by the Royal Psalmist, "Blessed is the man who hath not walked in the counsel of the ungodly, nor stood in the way of sinners, nor sat in the seat of the scornful, but his delight is in the law of the Lord." The psalm of Horace and the psalm of David are alike devout confessions of the blessedness of purity, and are tributes to the importance of moral culture as an essential to the full development of mind and mental balance.

Indeed, without this moral culture, we may say, it is well nigh impossible to understand even Nature herself. Certainly this is so, as far as the ideas of purpose and design are concerned. As Baring Gould has well put it, the world is a visible exhibition of the ideas of God, a mighty book to be read. But who is to spell out this Created speech and comprehend its significance? Those who are to catch and understand the ideas of God, must have a spiritual nature capable of perceiving such truths. "Therefore, he who is to read Creation, must be neither mere spirit nor mere body, but must have a spiritual nature combined with a corporeal nature, so that, through the things revealed to the mind by the bodily senses, the thoughts of God may be perceived." Mental hygiene or culture, from this standpoint, recognizes the essential nature of man as a spiritual being, and points to the necessity of educating his moral nature in harmony with his intellectual, to bring forth the full man.

In this view the very wastes and solitudes of nature come to have their moral and spiritual uses. In a burst of enthusiasm, Baring Gould exclaims: "The time of Alpine snow has come; age after age has seen it powdered on the mountain peaks, slide down the flanks in ice, and flow away in rivers to the sea, unesteemed save for the water it yielded. But its time has come, its value is known. There is no medicine to a weary brain, like the golden light on a distant bank of Alpine snow * * * * I remember a mountain scramble leading me suddenly from rough rocks and sear grass, upon a dell of rich greensward, girt about with pines. Set in the turf was here and there a fallen star—a yellow anemone; on the rocks the carmine Alpine rhododendron was in full blaze of blossom, and over all the sward was a tender bloom of forget-me-not. Overhead burnt

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a glacier in the summer sun, and a thread of silver fell in powder from it, waving in the soft air. I am not ashamed to tell you that that vision filled my heart to overflowing. God spake through that scene, through every flower, out of the mountain, out of the ice. The voice of God, walking in that garden, was as audible as of old in Paradise, when Adam heard it in the cool of the day."

No reflecting man can fail to see that the attention given to education, all over the world, is a most significant fact in the history of this period. That education, in some degree, shall be universal, seems to be a common sentiment. That this is essential to the progress of civilization, needs only to be stated. The great questions that arise are, what shall education be, and what shall it include? Shall it include religious instruction in all fundamental training? is the real problem, however the question may be stated. And reaching higher in the scale, the same great question intrudes itself, only in a different form. The scientific theory of culture, set forth by the school of which Professors Huxley and Tyndall are exponents, as Principal Shairp has so well pointed out, gives little account of, and makes no provision for the moral elements of human nature, and this would seem to be its deep defect. As he truly says, "the knowledge of the highest things, those which most deeply concern us, is not attained by mere intellect, but by the harmonious action of understanding, imagination, feeling, conscience, will—that is, of the whole man—reason in its highest exercise, intelligence raised to its highest power." And this for the single reason that no science can call our *whole* nature into play at once. This can only be done by religion, which alone calls upon the whole of man. When Prof. Huxley presents life as a game of chess,

with an invisible player, he endeavors to save the idea that a man *must* respect the rights of others; but there is no more room for such an idea in his scheme than there is in a shipwreck, or in Darwin's doctrine of the survival of the fittest. It is *not* a *natural* impulse of man to respect the rights of others, or "to love one's neighbor as one's self;" as Principal Shairp has well said, it requires the whole weight of Christian motive to do either.

III. When we come to examine mental hygiene from a national point of view, we see that it comprises all that gives intelligence, character, dignity, progress, and stability to national life. In this greater field the lesser are included. That hygiene which tends to elevate a people both mentally and physically, by a true and rational culture, is in fact mental, moral and physical training, resting on definite principles, and these so accepted as to become the prevailing and growing habit of the people; or, in other words, culture extending itself into national habits, thoughts and pursuits. Whatever theories we may adopt as to the equality of man, the best practical result of national training must be to give to each class of minds that bias which will serve to develop useful individual tendencies, and at the same time, in the main, correspond with its social status. For whatever general education or fundamental culture we may rest upon as a prescribed system for general application, the professional man, the merchant and business man, the mechanic, the farmer, the clerk and the laboring man need different training to fit them for practical life. The question of mental hygiene is therefore not simply how we may best train men so as to cultivate mental health and physical vigor, but also how we are to bring about the use and application of all the principles and agencies which are best adapted

to develop, expand, and maintain in balance the mental and spiritual life of individuals, communities and nations, so as to insure progress in civilization, a healthy state of general and domestic morals, and, at the same time, the advancement of culture, arts and industries.

It is only within a comparatively short period, that the study of general and mental hygiene has been demanded, under the progress of science. This study has been stimulated by the developing necessities of civilization, the greater attention to sociology, and the progressive ideas of personal liberty and responsibility. All the ancient civilizations were but little concerned in the welfare of the individual, as a unit going to make up national life. Knowledge and the exercise of governmental functions were confined to the few. The great masses were only so much brute force, or mere physical elements, in the hands of rulers and leaders, to carry out their own ends; and to all this the masses gave almost absolute assent. The lives of the people were held cheap by the rulers, as well as by the people themselves. Even the great revolutions, from time to time, were not movements of the people, but were simply brought about by kindred though antagonistic governing families, and the people were used in their respective interests, being aroused under the temporary stimulation of the passions of the hour. They had no appreciation of the ultimate tendencies of public movements, and no hope or desire for personal elevation or advancement. In such a state of national life, mental culture could have no wide significance, and no place except among the learned, as a mere subject of contemplation. Therefore for many ages we have little on the subject of mental hygiene, in any direction, beyond the philosophic declarations and fables of learned men. The priestly orders, indeed, in ancient times combined

and exercised largely the professions of minister, teacher and physician, and were also the trusted advisers of kings. The Mosaic law laid down the rules of hygiene, as it did those of morals, intermarriage, and worship, in a single code.

The aphorisms of Hippocrates embrace about all that is valuable in medical literature of the pre-Christian centuries. The Code of Health of the School of Salerno, for hundreds of years a medical classic, contains the recorded knowledge on the subject of health down to the sixteenth century. A recent translator, Prof. John Ordonaux, says of it, "It was for ages the Medical Bible of all Western Europe, and held undisputed sway over the teachings of its schools, next to the writings of Hippocrates and Galen." It contains a great many precepts and dietetic rules, but deals little with mental hygiene; and this is the sum:—

"Salerno's School, in conclave high, unites
To counsel England's King, and thus indites:

If thou to health and vigor wouldst attain,
Shun weighty cares—all anger deem profane,
From heavy suppers and much wine abstain,
Nor trivial count it, after pompous fare,
To rise from table and to take the air.
Shun idle, noon-day slumber, nor delay
The urgent calls of Nature to obey.

These rules, if thou wilt follow to the end,
Thy life to greater length thou mayest extend.

Shouldst Doctors need? be this in Doctors' stead—
Rest, cheerfulness, and table thinly-spread."

The author closes with a valedictory which would indicate that he felt he had accomplished a great work:—

“The Flower of Physic endeth here its strain;
The Author, happy o’er his garnered grain,
Prays that in Heaven there be prepared for him
A seat near Christ, and His blest Seraphim.

Amen!”

We must not forget, however, the great services rendered, during the dark ages, to Science and Literature by the Monks and Religieux while buried in their cloisters, as well as their work in preserving the treasures of learning from the all-surrounding devastation.

It is admitted by all historians that, in days of violence and anarchy, the Church was a defence and refuge of the poor and the oppressed, as well as of the learned, against the hand of tyranny and rapacity. To the Benedictine orders, at least in their constant and systematic attention to the cultivation of the soil, and the implements and improvements of agriculture, we owe a great lesson of that primitive truth, that in the sweat of man’s face shall he eat bread. It may even be said that the motto of this order, *laborare est orare*, has become the watchword of modern civilization, for in no period of the world has labor been so dignified as in these times, and the machinery of labor so multiplied for the uses of man.

Mental hygiene, from a national point of view, would also cultivate in the people a harmonious and universal aim towards elevated and yet practical ideas. A national sentiment, fostered and dignified by government, in favor of education, mechanics, agriculture, arts, becomes a most powerful mental stimulant to individual effort, and seems to give breadth, tone, and vigor to

national mind and character. No people, perhaps, ever gave more earnest and practical attention to educational power and the value of morality, as elements in government, than the Puritan stock of New England. From the first, the church and the school-house rose side by side, and whatever economy and frugality they exercised in affairs, and they were marvels in these virtues, they never stinted the head and the heart. They had lofty ideals, and they practiced stern virtues, and when national oppression came they had stout hearts, willing hands, and clear heads, to offer in the struggle for liberty and the founding of a nation. The sentiments of Union and Liberty, early and deeply rooted in the mental soil of the early inhabitants of the American Republic, have propagated their influences and spread their roots and fibers through the blood-soil of children's children, and we see the result in millions of active, intelligent minds, carrying forward with united and persistent purpose the vast interests of this great nation, and subduing this mighty continent, in its multiplied physical resources, to the utilities of mankind, as though governed by a single national impulse.

The founders of the Republic, in every part of the land, seemed to have been thoroughly permeated with the spirit of personal and public duty. With them, Liberty meant Law and obedience to principles of Justice—an obedience, as beautifully expressed by Ruskin, "chastisement of the passions, discipline of the intellect, subjection of the will, fear of inflicting and shame of committing a wrong; respect for all who are in authority, consideration for all who are in dependence; veneration for the good, mercy to the evil, sympathy with the weak; watchfulness over all thoughts, temperance in all pleasures, and perseverance in all toils."

Had our ancestors cultivated the softer graces, and given themselves up to games, sports, and ease of life, and the government contented itself with hereditary dignities, leaving the mass of people in ignorance, and to think and act only in the narrow sphere of providing daily bread by daily toil, how different would have been the mental status of this nation to-day! If, on the other hand, the inhabitants of this country should ever become so demoralized and degraded as to find their contentment, like the people in the latter ages of Rome, in material comforts alone—*panem et circenses*—mere bread and amusements—then, too, like the later Romans, they would soon become the prey of family feuds and contending factions, ending in the despotism of a swift succession of flagitious rulers, till the whole political system would sink into final disintegration and ruin.

This Centennial, a part of the movement of which this International Medical Congress represents, is a great national thought, and a most powerful influence in stimulating national mind, as well as individual, in the direction of healthful mental activity. Indeed, it is itself a vast and far-reaching means of culture, which touches a responsive chord in nationalities of the most diverse social and political character, but nevertheless in harmony in the one direction of progress. To impress men by such magnificent displays of wealth, mechanism, and art; to show them that life is more than meat and drink; that a nation is great and powerful in proportion as its citizens are cultured to refinement, utility, morality, and personal responsibility; that these constitute the foundation stones of national greatness and prosperity is, in itself, a great national hygienic measure. As the accumulation of patrimonial treasures, learning and office, give dignity to families,

and stimulate to higher culture, so the accumulation of treasures of all kinds, and the recognition and cultivation of art and learning by nations, tend to dignify national reputation, and to stimulate citizens of all classes to higher efforts and more patriotic lives.

Thus a nation secures mental and moral growth and breadth of enterprise. No one can look at the wonderful Exposition, now held in this city, without realizing this fact. The world seems, indeed, to be here assembled. The Egyptian, the oldest civilization, stands before us to-day as it stood in the days of the Pharaohs. The march of progress and the attrition of nations may have modified her national life in some outward things, but the central ideas remain the same; her escutcheon is unchanged, and she sends to this Centennial, as an essential treasure, the head of Rameses, thus typifying her original and perpetual dignity, unbroken through the long tide and flow of centuries. And so down through the roll-call of nations, to our own, each has its own grand representative idea. At the end of a hundred years we stand at the statue of Washington, and relate his virtues, as embodying the central ideas out of which grew, and on which rests, the deep, broad and sure foundation of this Republic. Egypt may come to us; she may take our ploughs and reapers, our engines and printing presses; but she will only enthrone Washington when she accepts our ideas.

The true greatness and dignity of any nation will always be measured by the standard of its mental and moral culture, not simply by the intellectual standard it presents in its military power, its science and arts, and its dynamic forces, but also by its will and capacity for morally elevating its citizens, without clash of caste; maintaining universal freedom, with all men equal before the law. The present Emperor of Russia,

realizing such a sentiment as essential to the dignity, prosperity and permanence of the government, transformed, in a day, millions of serfs into freemen, the grandest ukase in the history of time. This is the substance of Magna Charta, the glory of England. This was the ostensible aim of Cæsar. His memory is quite as much dependent on his philosophic culture, and his assimilation to the people, as on his conquests. He shed lustre on Rome, and on mankind, by his amazing combination of simplicity, learning and statesmanship, with the greatest capabilities of a soldier, all of which he illustrated in the midst of a galaxy of the most magnificent minds in the annals of the world. His name fitly represents the power of mental culture in the direction of definite ideas, in a ruler looking to the elevation of a people as the true source of national power.

Rome lost in prestige when she accustomed her people to ideas of conquest and personal ease, above moral culture, in its wide meaning. Indeed, no nation has ever maintained permanent elevation and power, which has encouraged or permitted public opinion to act outside of the pre-ordained boundaries of religious truth. The belief in a God must be the corner-stone on which a nation rests. Both Greece and Rome flourished in power, arts and arms, so long as they clung to a belief in a supreme Providence, above Nature. But when the speculative philosophy of Epicurus and Lucretius, with its absorbing sensualism, usurped the ancient worship, they perished beneath the blight of a cold skepticism. The glory of Egypt was clouded with Cleopatra, who represented deified sensuality on the throne of a Nation. The great Assyrian Empire, in like manner, fell under Sardanapalus, the gilded monarch of Asiatic licentiousness. France well nigh perished when she installed the Goddess of Reason in the seat of Worship, and her Chief Assembly voted Death to be an Eternal Sleep.

Under the cultivation of ideas, and the practice of the principles, to which I have referred, by the founders of this Republic, we have the national fruit, not only in a great and well-established nation, but conspicuously in the wonderful development of the resources of high civilization all over this continent. It is a truth, well worthy to bear in mind always, that education, with them, embraced ideas of religious freedom, which were cultivated together, no matter what the calling in life. And it is not too much to say that in the rigid spirit of utility and the high sense of responsibility of the early fathers, we have the seed from which has germinated, over this broad land, the personal independence of character, the inventive genius, the subjection to law, and the matchless energy, which have made us equal in power to the older nations of the world, which have also given us an individual national character—stamped us as Americans—notwithstanding that we represent all the nationalities of Europe; which have developed a national mental hygiene which reduces and conforms the cosmopolitan ideas of the vast and constant drift to our shores, to the national standard, which prevents anything antagonistic to the fundamental principles of the government from taking root, and which assimilates and harmonizes all the seeming antagonisms to the genius and spirit of the constitution, the moment they are subjected to its dominating idea, “government of the people, by the people, for the people.”

I might properly allude to the great influence exerted on the national mind by such men as Franklin, Rush, William Penn, Robert Morris, Richard Henry Lee, John Jay, the Adamses, Hamilton, Jefferson, Madison, and others, if there were time; but such influence, however special and potent, was, after all, only the projection and happy presentation of principles which,

when thoroughly impressed, acted on the mind of the people in moulding national thought. The work of these men was done through the reason and judgment, and not by popular display and glamour, and it was abiding. Economics and population, education, statesmanship, finance, constitutional law, Political Economy in all its wide bearings, received from them the most earnest and profound discussion. However great their attention to religion, they did not confound it with state morals; but, on the one hand, they maintained Christianity and the highest responsibility to God, and, on the other, they sought to work out, under laws, the mutual rights and relations of men under their new social and political conditions of government.

Their lives were illustrations of the principles they advocated; William Penn exercised a wide and mighty influence in securing not only the mutual co-operation of savages, but also of classes of men bred in other traditions, and in bringing all to the formation of national habits and character. Yet he represented no victor with temporary plaudits, no sensational or dramatic phase of social life or regeneration. His power illustrates what education, aided by elevation of character and equilibrium of the intellectual life and passions, may do in a man who is controlled by truth and directed by spiritual light. Wilberforce, in England, illustrated the same great influence on national mind. He showed how a strong mind, panoplied in its convictions of universal justice, might gradually undermine historic precedents, against all the forces of conservatism arrayed in opposition, as well as against the apparent interests of the nation. Slavery was then a part of the national wealth, but it died through the influence of this one peaceful mind, breathing condemnation upon it, and this in the very presence of those whose material

relations to it were of the closest character. Thus a whole nation was transformed by a mental revolution, wrought solely in the name of universal philanthropy, justice, freedom and religion.

Such are some of the higher triumphs of national culture, when it embraces the moral and spiritual elements of Christianity. Though this age may be characterized as one of liberal tendencies of thought, in all directions, it has been permeated by the principles of Christianity, and to-day there is more respect for religious truth, and a firmer belief in the necessity, for both man and nations, of faith in a God, than when the century commenced. When, in the recent French Revolution, the Archbishop of Paris, Monsieigneur Darboy, was struck down by the Commune, the nation turned from the act with horror. Yet the Bishop was only a man, and one among the hundreds of noble men who thus perished. But he represented Religion, and millions of people, alike Protestant and Catholic, condemned the deed as one of infamy, and as a diabolical defiance of the very instincts of humanity, as well as of the traditional sentiment of Christendom.

The lesson of mental hygiene, for nations, which we learn from all example, is, not that education and wealth, nor the refining influences of æsthetic art, will suffice for the highest development of national mind, but that, if underneath and through all these are not interwoven the great truths of moral responsibility to the author and upholder of all governments, lifting man above the dominion of the baser passions, the nation dies as an individual dies; for "unless the Lord built the house, they labor in vain who build it."

In the convention at Philadelphia, in 1787, for forming a constitution for the United States, after some weeks had passed in fruitless debate, a proposition hav-

ing been made for daily prayers, Dr. Franklin rose and said: "In the beginning of the contest with Britain, when we were sensible of danger, we had daily prayers in this room for Divine protection. Our prayers were heard and graciously answered. All of us who were engaged in the struggle must have observed frequent instances of a superintending Providence in our favor. To that kind Providence we owe this happy opportunity of consulting in peace on the means of establishing our future national felicity. And have we forgotten this powerful friend; or do we no longer need His assistance? I have lived a long time, and the longer I live the more convincing proof I see of this truth, that God governs in the affairs of men. And if a sparrow can not fall to the ground without His notice, is it probable that an empire can rise without His aid? We have been assured in the sacred writings that, except the Lord build the house, they labor in vain that build it. I firmly believe this, and I also believe that without His concurring aid we shall succeed no better, in this political building, than did the builders of Babel."* The motion was carried.

This illustrates the sentiment and temper of those who founded this nation, and may we not say, standing where we do, that the influence of this illustrious example has had some share in determining the tone and the practice, in that respect, of this renowned University from its foundation, whose successive Provosts have been eminent examples of the essential harmony between the different qualities of Faith and Science? These latter thoughts have come into my mind since entering this hall, while looking round upon the long line of Reverend Provosts speaking out from the canvas, and then reading over the door of entrance the grand in-

* Debates on the Constitution.

scription, "IN HONOREM DEI." An institution, like a State, which writes over its portals, "in honor of God," can not fail of success and power, before the people, as more than a century has here demonstrated. And this is my Alma Mater.

For individuals and communities, the quaint lines of George Herbert, with which I close this Address, are a suggestive and pregnant summary:—

Slight those who say amidst their sickly healths,
Thou livest by rule. What doth not so but man?
Houses are built by rule, and Commonwealths.
Entice the trusty sun, if that you can,
From his ecliptic line; beckon the sky.
Who lives by rule then, keeps good company.

Who keeps no guard upon himself, is slack,
And rots to nothing at the next great thaw.
Man is a shop of rules, a well-trussed pack,
Whose every parcel underwrites a law.
Lose not thyself, nor give thy humors way;
God gave them to thee under lock and key.

ASSOCIATION REMINISCENCES AND REFLECTIONS.*

BY ANDREW MC FARLAND, M. D.

An existence of well nigh the third of a century well entitles this Association to the term venerable. We have seen go from it, generally after lives fully and well spent in this one great department of science and philanthropy, the great majority of those who laid its foundation, and have seen enter it much the larger portion of those now in the privilege of membership. While we doubt not that the new blood and the new brain entering with each year in a constantly increasing stream will preserve all the vigor of the original stock, we may still be pardoned if we look back with something akin to veneration on those who so well laid the foundation on which we build. At the risk of presenting what is familiar to some, we propose briefly reproducing the men and events of this long ago period, in the hope that those who knew not the men, and were too late to share in the events, may gather fresh zeal in the great unfinished work that lies before us all. Incident to the task before us will also be the inquiry, how well this Association has answered its own designed end; how it has performed its duty to society at large; contributed its due share to the philanthropy of the age, and thus vindicated its own lengthened existence.

The steps leading to its organization were few and simple, and are here stated merely as historical data.

* Read before the Association of Superintendents at the annual meeting held at St. Louis, May, 1877.

Its idea was first suggested during a visit made by Dr. Samuel B. Woodward, of the Massachusetts State Lunatic Asylum, at Worcester, to Dr. Francis T. Stribling, of the Virginia Western Asylum, at Staunton, during the spring of 1844. This pleasing incident reminds us that it is not the first time Massachusetts and Virginia have been united in council for the promotion of designs of the utmost national importance; and that men representing both sections of the country, have been, ever since, firmly united for the furtherance of our common object, may be due, under Providence, to this apparently fortuitous origin. Which of the two gentlemen first suggested the idea may remain forever unknown, but from what we know of the character of the two men, and the zeal with which both lent their endeavor to carry it into effect, the design may be fitly ascribed to either. The result of this conference was that the first meeting was held at Philadelphia, on the sixteenth of October of the same year. The gentlemen present were, Drs. Woodward and Stribling, before mentioned; Dr. Samuel White, of Hudson, N. Y.; Dr. Isaac Ray, of Augusta, Me.; Dr. Luther V. Bell, of Somerville, Mass.; Dr. J. S. Butler, of Hartford, Ct.; Dr. Amariah Brigham, of Utica, N. Y.; Dr. Pliny Earle, of Bloomington, N. Y.; Dr. Thomas S. Kirkbride, of Philadelphia; Dr. Wm. M. Aul, of Columbus, Ohio; Dr. John M. Galt, of Williamsburg, Va., and Dr. Nehemiah Cutler, of Pepperell, Mass.; all gentlemen in charge of Institutions for the Insane at their given localities. They represented the institutions of chief note, then in existence in the country. Of these gentlemen only four now survive. It is to be presumed that beyond an organization and assignment of topics for consideration at a subsequent meeting, little would be accomplished; but as we review the latter we are struck by the Cath-

ASSOCIATION REMINISCENCES AND REFLECTIONS.*

BY ANDREW MC FARLAND, M. D.

An existence of well nigh the third of a century well entitles this Association to the term venerable. We have seen go from it, generally after lives fully and well spent in this one great department of science and philanthropy, the great majority of those who laid its foundation, and have seen enter it much the larger portion of those now in the privilege of membership. While we doubt not that the new blood and the new brain entering with each year in a constantly increasing stream will preserve all the vigor of the original stock, we may still be pardoned if we look back with something akin to veneration on those who so well laid the foundation on which we build. At the risk of presenting what is familiar to some, we propose briefly reproducing the men and events of this long ago period, in the hope that those who knew not the men, and were too late to share in the events, may gather fresh zeal in the great unfinished work that lies before us all. Incident to the task before us will also be the inquiry, how well this Association has answered its own designed end; how it has performed its duty to society at large; contributed its due share to the philanthropy of the age, and thus vindicated its own lengthened existence.

The steps leading to its organization were few and simple, and are here stated merely as historical data.

* Read before the Association of Superintendents at the annual meeting held at St. Louis, May, 1877.

Its idea was first suggested during a visit made by Dr. Samuel B. Woodward, of the Massachusetts State Lunatic Asylum, at Worcester, to Dr. Francis T. Stribling, of the Virginia Western Asylum, at Staunton, during the spring of 1844. This pleasing incident reminds us that it is not the first time Massachusetts and Virginia have been united in council for the promotion of designs of the utmost national importance; and that men representing both sections of the country, have been, ever since, firmly united for the furtherance of our common object, may be due, under Providence, to this apparently fortuitous origin. Which of the two gentlemen first suggested the idea may remain forever unknown, but from what we know of the character of the two men, and the zeal with which both lent their endeavor to carry it into effect, the design may be fitly ascribed to either. The result of this conference was that the first meeting was held at Philadelphia, on the sixteenth of October of the same year. The gentlemen present were, Drs. Woodward and Stribling, before mentioned; Dr. Samuel White, of Hudson, N. Y.; Dr. Isaac Ray, of Augusta, Me.; Dr. Luther V. Bell, of Somerville, Mass.; Dr. J. S. Butler, of Hartford, Ct.; Dr. Amariah Brigham, of Utica, N. Y.; Dr. Pliny Earle, of Bloomingdale, N. Y.; Dr. Thomas S. Kirkbride, of Philadelphia; Dr. Wm. M. Awl, of Columbus, Ohio; Dr. John M. Galt, of Williamsburg, Va., and Dr. Nehemiah Cutler, of Pepperell, Mass.; all gentlemen in charge of Institutions for the Insane at their given localities. They represented the institutions of chief note, then in existence in the country. Of these gentlemen only four now survive. It is to be presumed that beyond an organization and assignment of topics for consideration at a subsequent meeting, little would be accomplished; but as we review the latter we are struck by the Cath-

olic and comprehensive spirit in which the Association entered upon the work before it. If it were ever charged that designs of self-seeking, either as individuals, or as a body, had at any time a place in the scope of the Association, the topics discussed from first to last would set such charge forever at rest. Had any such unworthy end been in the least contemplated it would have betrayed itself when the whole field of the future lay fresh and new. The scope of membership was made to include all in charge of insane asylums in the United States; subsequently widened so as to embrace our brethren over the entire continent, and also so as to retain in membership those retired from such controls—both measures of the utmost value, more especially the former, which has brought in a class of membership now well nigh indispensable.

We have alluded to the topics first proposed for discussion, in which the key-note of purpose is best sounded, and by the tone of which the progress of the Association has ever since been strictly regulated. Even at this late day it is worth our while to recapitulate them, as they are so significant of the single purpose had in view. They were, "on the moral treatment of insanity; the medical treatment of insanity; restraints and restraining apparatus; construction of hospitals for the insane; jurisprudence of insanity; prevention of suicide; organization of hospitals, and a manual for attendants; statistics of insanity; support of the pauper insane; asylums for idiots and the demented; chapels and chaplains in hospitals; post mortem examinations; comparative advantages of treatment in hospitals and private practice; asylums for colored persons; provision for insane prisoners; and on the causes and prevention of insanity." The Association can justly claim credit from its first meeting to the

present, of having as strictly confined itself to subjects bearing on the good of the great interest had in charge, as is indicated in the above list of topics. Discarding almost from thought even, questions of medical ethics, necessarily held in close regard by other medical bodies, accepting in membership all thought worthy by governing powers, of being placed in charge of insane asylums, it has kept its single eye on its ordained work, the best good of the insane.

The second meeting of the Association convened in Washington on the eleventh of May, 1846; and from that time the observations in this paper are those of an eye-witness. It happened on the eve of affairs of some national moment. The day set was Monday, and most of the members were on the ground the Saturday previous. Congress was in session, and disturbed relations with Mexico was the absorbing topic. It became known on Sunday that a Cabinet meeting was being held over dispatches just received, and that an exciting debate might be expected next morning. After calling to order, an adjournment was had to the Capitol to hear the memorable debate, resulting in a declaration of war by a preamble, followed by events which, long after the bitterness attending their first inception has subsided, have given to us and to a higher civilization, a new empire, rich in promise, the idea of which then would have been the wildest dream.

The first President of the Association, by a peculiarity of fitness that seemed to bring him alone to view, was

DR. SAMUEL B. WOODWARD.

Perhaps the senior in years of any present, a man of remarkably striking presence, tall and of full figure, without being corpulent, suggestive, in the mingled grace and dignity of his manner, of President Washing-

ton, to whom also he bore a marked facial resemblance, full of suavity and kindliness of bearing, hardly ever was the chair of any deliberative body filled with greater ability, certainly never with more dignity. His distinguishing merit was to be able to bring out, upon any given topic, all the force of thought present. Discussion got its full vigor under his skillful rule. A suggestive observation often opportunely thrown in, a marked and approving attention to a timid and perhaps hesitating speaker, a habit of easy dispatch of business without show of impatience, these were a few of the qualities which will make Dr. Woodward long to be remembered in the annals of the Association. As an original thinker, as the phrase is used, he did not rank among the first; but he was second to none in the fertility of his mental resources on the multitude of practical questions, which must always engross much of the attention of this body. A discussion was never complete till at its close the glance of the President had swept over all the field traversed, with generally a surprise on all hands at the many palpable points yet untouched, and the wideness of the field that lay beyond.

But it was in his own field of duty at home that Dr. Woodward made his great mark. He almost, of himself alone, constitutes an epoch. The opening of the Massachusetts State Lunatic Hospital, at Worcester, was one of the first waves of a great tide which apparently has not yet reached full flood. It was the first real recognition of the obligation of a State, as such, to care for its insane. There may have been, it is true, some partial recognitions elsewhere, but the broad ground, as we now generally see it, was then entered upon. On Dr. Woodward, after careful selection, devolved this work. His personal traits, already touched upon, and,

above all, his sanguine temperament, worked out the result which every one knows. His reports breathed to the full his hopeful, enthusiastic spirit, abounding in graphic narration of cases, such a kind of presentation as the more severe taste of the present day hardly sanctions, and which indeed is not required. Issued in what was then regarded as large editions, their effect was deep and far spread. The press copied from them almost universally, and the writer of this then living in another State, before even a student of medicine, remembers thumb-worn copies passed from neighbor to neighbor as among the most attractive reading of the time. Many agencies, it is true, contributed to the establishment of State institutions for the insane as rapidly as legislation could act during the ten years after the time named, but any statement of them would be incomplete unless conspicuous place was given to the marvelous pen of Dr. Woodward. Reading these reports now, after all the gathered lights of more than forty years stand between us and their time, we do not perhaps, realize all their force and originality. The scale has wonderfully widened, we are some steps nearer perfection, but when we take into account the progress made up to his time, and that made since, we must allow that he did his work wisely and well. When I mention the name of

DR. AMARIAH BRIGHAM,

The lamented Superintendent of the New York State Lunatic Asylum, at Utica, the heart of every older member of the Association will thrill with a warmer glow at the recollection of that distinguished member of our specialty. Perhaps without an exception he left every one who approached him deeply impressed alike by his remarkable gifts of mind, and the spotless purity

of his life and purposes, all of which stood manifest in the man himself. Spare in person, of full height, but with a languor of movement suggestive of ill-health, with a voice like music itself, and a smile singularly winning, there was everything in him requisite in a man born to be loved. From the meetings of the Association Dr. Brigham was never absent during his life, attending the last one a little more than three months before his death, September, 1849.

A mind richly endowed had evidently been cultivated with diligent industry. His part in discussion was always full, most fertile in suggestion, and evinced, throughout, the completeness of his devotion to the great work of his life. Whatever the subject, and however incidental, he took it up with a systematic arrangement of its points, that bore the mark of an especial preparation. His happy faculty of condensation held every listener in close attention while he would give a subject a seemingly exhaustive treatment, all the training of his mind, his large experience and the purity of his private character came in to give import to whatever he contributed. This sketch is incomplete in almost its largest part while there is wanting any conception of the quick and subtle play of expression over the fine lines of his face, lighting up the thought as it fell from his lips. While Dr. Brigham may be said to have died at an age when men are usually best fulfilling the promise of life, he has left his mark too deeply traced not to be visible for this age at least. Coming upon the stage a little later than Dr. Woodward, the aims of their lives were much the same. The perhaps unconscious mission of both was to prepare the public mind for the great awakening to the claims of the insane that dates closely on their time. Such active exercise of deed, pen and voice, as marked the whole

life of Dr. Brigham could not fail of much fruit. The AMERICAN JOURNAL OF INSANITY whose vigorous old age reflects so well on its later conductors, is a worthy monument of his genius and perseverance, and that the Institution over which he presided became at once, what it has ever since continued to be, the great training school for superintendents, must be attributed, in great measure to the standard of merit which he set up. If any idea has ever gained currency that those in trust of the interests of the insane have lacked the progressive spirit, have been wanting in quickness to seize upon and adopt every agency to advance them, the special labors of Dr. Brigham in this direction would set such idea at rest. Thirty-two years ago the writer of this paper found him zealously engaged in striving to realize what is even now the highest ideal of the foremost curative agencies in restoring the insane, and making perfect the ends of asylum treatment. Workshops, the academical school, the school in penmanship, the singing school, tableaux and dramatic exhibitions, conversaciones, all were kept up with the ardor given by his sanguine and ever active spirit. No possible means were unthought of and untried, and as he confessedly failed in many of them we may feel that there are limits which no enterprise or fidelity are ever likely to pass.

In approaching the third of the trio especially conspicuous at the meeting referred to, we are reminded that while early privation proves often one of the best foster mothers of talent, this quality does sometimes, nevertheless, gather to itself, and improve to the utmost, all the advantages to be derived from distinguished birth and favorable early surroundings. Conspicuously was this the instance in

DR. LUTHER V. BELL,

Superintendent of the McLean Asylum, near Boston. Hardly any stock, both in this and the mother country, has furnished so many names to the roll of distinguished men in the professions of medicine and the law, as that from which he sprang. Seldom has the time been, during more than fifty years of this century, that some one immediately related to him has not been found in the National Congress. From his eminent father who received in turn every high honor a State could confer, he stood in the same relation of pupilage enjoyed by the younger to the elder Pitt. Nature was also lavish to him in the gifts men most prize. Much above the common stature, the grace of his carriage was marked by a trace of negligence, manifested also in his usual dress. A thick growth of raven black hair literally swept across a brow of almost marble whiteness, beneath which were features which a Phidias might have left as his abiding model of the human face divine, if a native nobility of sentiment and a mind's full culture had been the ideas to be expressed. Education did its utmost to perfect these native qualities. Crowned with collegiate honors while yet in his boyhood, the best training of this country and Europe early introduced him into the medical profession. At the threshold of his career he became a prolific writer on medical subjects. Such a man could not remain obscure. Perceiving that his native State of New Hampshire must follow the example of contiguous ones, in making provision for the insane, he allowed himself to be elected to the Legislature to further the object. But as is often the case, in aiming at one object a higher, one in the same direction is reached, it was while thus engaged that he received the appointment to the McLean Asy-

lum, made vacant by the sudden death of Dr. Thomas G. Lee. Never could man and place be better fitted to each other. The Institution, perhaps always with larger resources than any other in the land, and deriving its patronage as largely from the affluent and intelligent, conferred a worthy compliment in his selection. Probably, few men ever rested in a position with such assurances of permanency. The impression made by the man at first sight, the dignity, grace and courtliness of his manners, his voice of deep, mellow richness, which all knowing him remember well, though so difficult to express in words, were in full correspondence with his daily surroundings. To those of us then in charge of neighboring State institutions, a visit to the McLean Asylum, and some hours in the society of Dr. Bell, were like passing from strong fields of rugged toil into a garden of delights. Having to strangers something of the awe-inspiring, and always delicate and fearful of seeming officious, he was, nevertheless, a ready and wise counsellor and a warm and sympathizing friend.

From the sessions of the Association Dr. Bell seems never to have been absent except when out of the country to evade the family scourge of Phthisis Pulmonalis, which pursued it almost to extinction, holding also over him its life long menace. Of his manifold labors, of his lasting discoveries, which have wrought his very name into our nomenclature of disease, it is unnecessary here to speak. They are abundantly recorded elsewhere. His utterances might seem to a listener to have something too much of precision, as if every word was to stand the test of print—as indeed it might have done. But in this there was not the slightest trace of pedantry; it was only the habit of exactitude, almost inseparable from the cultivated scholar. I am satisfied that to

those who fully knew Dr. Bell, who have been intimately drawn within the influence of his great mind and truly tender heart, these terms of eulogy will not seem too high. There is a phase in the closing years of his official life, perhaps never expressed, but nevertheless suspected, that may here be mentioned as throwing its share of light into the recesses of his remarkably self-contained spirit. To his family he was devotedly attached, to his amiable wife especially, to whom his bearing was always peculiarly tender. It has been intimated that he owed much to her winning and saving influence at a critical period of his life. By a rapid succession of bereavements these objects of his love, the wife included, were almost entirely swept from him. We can somewhat understand the force of the blow to one of his temperament. Perhaps it was but a mere coincidence, but at about the same time the phenomena of mis-called "spiritualism" received some of his attention. He approached it strictly in the spirit of scientific inquiry. On more than one occasion some of his observations were communicated at meetings of the Association, but never apparently transcending the ground of the cautious scientist. It may have been only the surmise of observing friends—and it is here given as hardly more—that these investigations, perhaps unconsciously to himself, gave a cast of their own to the closing parts of his life; that there was, despite his always expressed skepticism as to anything supernatural in what he observed and described, a melancholy fascination in inquiries, that, even in the idea brought him into relations with the loved and lost. The effect, at most, was nothing more than to "sickly o'er the native hue of resolution;" but if any of the surmise be correct in the case of one of such strict conservatism as the subject of these remarks, we must believe there are some fields

of inquiry pervaded by an atmosphere perilous to the best mental organization.

In summing up his character we are almost forced into the language of Griffith's oft quoted eulogy,—true of him save only in the haughty spirit implied.

“He was a scholar, and a ripe and good one;
Exceeding wise, fair-spoken and persuading;
Lofty and grave to those who lov'd him not,
But to the men that sought him sweet as summer.”

Prompt to the call for the first meeting of the Association was

DR. WILLIAM M. AWL,

of the Ohio State Institution, at Columbus, then in its infancy. Always excepting the Asylum at Lexington, Ky., which had long stood as a far outpost in the field of philanthropy, the movement of the State of Ohio was one of the first steps following the great awakening coeval with the times of Drs. Woodward and Brigham. Dr. Awl merits a prominent place in the reminiscences of the Association. He embraced its aims and spirit with all the ardor of his enthusiastic character. He made up for the lack of the more shining qualities so conspicuous in those before mentioned by great force of character, much more than ordinary originality, a rare knowledge of the world, keen observation and a soundness of judgment on points brought into discussion, that made him almost invaluable as a member. He was a ready and easy speaker, and always full of most pertinent matter. He was elected Vice-President in 1846, to succeed Dr. White, deceased, and became President in 1848, on the retirement of Dr. Woodward. His communications, chiefly in the course of the discussions, were an important addition to the intellectual store of this body. There were side-lights to his char-

acter that can not be omitted and leave him fully described. Something of humor seems needed to make up any well-rounded character. This quality—irrepressible in him—lighted up his discourse at befitting points with rays especially attractive. A related experience of asylum life, touching on some point in discussion, was quite apt to be set home by a racy anecdote trying to the risibles of all present. Before hospital reports had settled to their present staid level his own betrayed a vein of this quality apparently impossible to be kept in subjection. Some may yet remember a night-ride by omnibus from a visit to the Bloomingdale Asylum, at the session in New York in 1848, when the humor of Dr. Awl was allowed full play. Such an outflow of anecdote, crisp with the flavor of western life, surely never before or since was let loose over a company, till all sides ached to the last endurance before reaching the hotel in the city. Yet, not inconsistently, this quality was associated with a religious character of the highest order. In the fields of Christian and church work he was an active laborer, long an elder in the church of his communion, a pattern in his walk to the end of his days. It must have been a rare steadfastness to conviction, and no ordinary powers of persuasion to the duty of Sabbath observance that could induce a Mississippi river captain to tie his boat to the river bank from twelve o'clock on Saturday night, till the same hour on Sunday. Too early was he lost from our specialty and attendance on our meetings from the mutability not seldom an occurrence in institutions under State control.

The space allowed for this paper forbids extended mention of others, almost equally prominent, who gave their stamp to the designs of this body. It would be an injustice to leave unmentioned

DR. WILLIAM H. ROCKWELL,

of the Vermont State Asylum at Brattleboro, that great master of hospital finance, who not only treated his patients skillfully and administered affairs well, but actually almost built his institution from its first small beginnings. How nearly or quite \$200,000 was actually earned and put into permanent buildings during Dr. Rockwell's time, as appears by the late report of the State Commissioner, and that, too, out of a scale of support rates that would discourage the keeper of a western county poor-house, is one of the marvels of our time. He, too, was a man much above ordinary stature, somewhat rugged of feature, and with something of an embarrassing mannerism of speech, which, however, did not destroy the force of his utterances, which were often pointed and full of practical good sense. Nor must mention fail to be made of

DR. JOHN M. GALT.

of the ancient Institution at Williamsburg, Va., a man always held in high respect by his associates, alike by the clearness of his views and his native modesty of character. And last, but by no means least,

DR. FRANCIS T. STRIBLING,

of the Virginia Western Asylum, at Staunton. As these sketches of individuals are drawn entirely from personal recollection, and little dependent on other sources, it has so happened that the acquaintance of the writer with Dr. Stribling was limited to but two meetings, the attendance of the latter being, unfortunately, somewhat unfrequent. Yet, infrequent as these meetings were, they were sufficient to disclose the source of the almost

112
veneration with which his name is mentioned, not only through the length and breadth of the old Dominion, but over the entire South. Modest to the extreme of sensitiveness in all things relating to himself, he was a man of clear, positive and independent views on professional subjects. Perhaps the very fact of his comparative isolation gave increased value to the emanations of his much thinking mind. His views were expressed in terse phraseology, speaking always directly to the point, seeking condensation in his matter, it may well be said of him, *non teligit quod non ornavit*. He was one of those who never rose to speak but all ears were turned in full expectation of hearing something of importance, and they never were disappointed. His impress was that of one who thought deeply, independently, and above all, with entire honesty. He was a man of agreeable person, remarkably self-possessed in his manner, and everything about him bespoke the cultivated gentleman in the best sense of the term. All of his character stood expressed on his face, frank, ingenuous, and open as the light of day. He was fortunate in being justly estimated at home, indeed as few men in his peculiar trust have the good fortune to be esteemed; and it is not unlikely that this sketch of him may have received a coloring from the testimony of native Virginians found all over the Northwest, to whom his name seems as a household word, never to be spoken without a tribute to the man.

We have alluded in these sketches to a part only of those who participated in the early deliberations of this Association. Their record is closed, and the work they had to do was worthily finished. Of these yet living we make no mention. Their time for eulogy is, happily for us, not yet come.

It now remains for us to consider, very briefly, what our Association has accomplished during the years of

its existence. Perhaps the most pointed answer to this question would lie in another, what our specialty in this country would have been without it? Necessarily separated from each other by wide distances, meeting only fitfully and by accident, judging of each other through sources of information liable to all manner of misconstruction, viewing each other often through the media of sectional or state jealousy,—is it not probable that instead of the present unanimity of aim for all that is high and progressive, we should witness the same spirit of jealousy and mutual depreciation that too often exists between men of the same calling, who know each other but imperfectly. We are fully secured against all this. From the Atlantic to the Pacific, and from the frozen north to the Southern Gulf, we know each other and what each is doing. Every worthy idea or discovery, every advanced procedure that facilitates, improves or makes in any sense better, becomes at once a common thought, or a common property, available and free for the common use. Such a thing as a better or more successful usage being kept in the possession of any one would be opposite to the entire spirit of this body. The best thought of the best men at once flows into the common stock. Whatever is especially excellent in any one, and recognized as such, becomes at once a standard of excellence to all—a mark set which every one instinctively aims to reach. In our specialty of professional duty the standard of excellence, if supported by no comparisons, is extremely prone to decline. Human nature, as embodied in the individual, is not proof against this lapsing tendency. It needs the constant spur of example. Who does not return from a session of this body with a higher sense of obligation to duty, with a spirit of determination to carry into effect all possible of the harvest of thought with which

every meeting is more or less fruitful? It is this annual rekindling of the fire of professional zeal that has placed our institutions for the insane in the front rank of all Christendom.

The salutary usage of changing the place of meeting each year, to a locality remote from that of the preceding, carries into all the important centers of influence in the land, at one time or another, the spirit it aims to promote, and the result invariably has been that a lasting good influence has been left behind. Local pride everywhere dreads damaging comparisons, and the approval or censure of this body of anything within the range of its proper judgment, must have weight in correction of an evil, or a stimulus to the further good, well nigh irresistible.

By a comparison of the observations of men in the most distant extremes of the land, we are enabled to see how the development of mental disease is modified by climate, by hydrometric conditions, by states of society and the origin and composition of different races of men.

By almost annual reports from individual members of recent, and sometimes extensive visits to the institutions of other countries, we are kept *en rapport* with the best minds and the best means, there existing, for the promotion of the objects for which we labor, in common with them. Happily for the age we live in, science and humanity are of no country—they link hands across oceans, and keep step together, animated by one voice. Through practical tests, reliably made by so many, we have been enabled to arrive at correct views of the principles and details of hospital construction and organization, so that, if any fair field is given, the mistakes of the past need not be of further occurrence.

By frequent and exhaustive discussions, embracing all possible points of the jurisprudence of insanity, we have been brought to substantial agreement on every principle, or the bearing of any state of facts, as they arise in courts of justice. If there are yet remaining, complaints of the bearing of expert testimony, as its province is entertained by this body, we are confident it is not a fault of these principles, in themselves, but rather of imperfection of legislation, or the failure of courts to assign to them their well-defined and proper place. Finally this Association has steadily pursued the object of its formation, and its ends have been abundantly reached. It has presented the noblest incentives under which men can act. It has stimulated the loftiest ambitions, it has kept pure and unsullied the most philanthropic purposes. It is the furthest possible remove from a "guild" to promote selfish ends. If it has ever essayed to encourage legislation in any given direction, that direction was indicated by the best of experience for the good of objects concerned, and if it has promulgated opinions, it has never been done in an *ex cathedra* spirit. As it has been, so it now is, and so we trust it will ever continue to be.

HYDRATE OF CHLORAL.*

BY CARLOS F. MACDONALD, M. D.,

Superintendent of the State Lunatic Asylum for Insane Criminals,
at Auburn, N. Y.

Passing over the history of the discovery of hydrate of chloral by Liebreich and its subsequent introduction to the profession as a remedy of great value in certain forms of disease, I shall endeavor to state briefly what thus far seems to have been established regarding its physiological action, and conclude with a short account of its most important uses as a therapeutical agent.

A series of experiments, to determine the action of chloral in health and disease, was commenced at the New York State Lunatic Asylum, at Utica, soon after the remedy was brought to the notice of the profession and before it had gained much prominence in this country. These experiments were conducted by Dr. J. B. Andrews and the results reported in the *AMERICAN JOURNAL OF INSANITY* for July, 1871.

The following is a condensed summary of Dr. Andrews' conclusions, and I may state, in this connection, that these conclusions have been fully sustained by other experimenters both at home and abroad:

1. That, primarily, chloral tends to increase the force of the hearts' action as shown by an increase of arterial tension and a decrease in the number of pulsations.
2. That large doses prolong this effect, but the reduction in the number of pulsations is not proportionate to the size of the dose.

* Report on "Chloral," made to the Association of Superintendents of Asylums for the Insane, at the meeting at St. Louis, May, 1877.

3. That the secondary effect of chloral is to diminish both the force of the cardiac impulse and the arterial tension.

4. That the active effects of the drug are most marked in from twenty minutes to one hour after administration.

5. That these active effects are manifested by mental, motor and sensory disturbances, somewhat similar to those produced by chloroform, except that they approach less rapidly and continue longer. There is a sense of weight in the head, a numbness or prickling of the extremities with gradually increasing drowsiness. The patient becomes loquacious, his speech "thick" and soon he is unable to articulate distinctly. There is a sensation of warmth in the gastric region, and if the patient remains up and about after taking a large dose his gait becomes unsteady from general weakness, and his appearance is that of partial intoxication. If the patient assumes a recumbent posture after taking the dose he soon succumbs to its influence and passes rapidly into the profound sleep of chloral, from which, however, he can easily be aroused.

Liebreich and others assert that chloral, when it reaches the circulation, is decomposed and converted, by the alkalinity of the blood into chloroform, and that in this manner it acts through the medium of the vaso-motor nerves. Chemists have generally accepted this theory, but the experiments of Gubler, Vulpian, Oré and Carville would seem to show that chloral, when administered in sufficient quantity, diminishes the general sensibility and reflex action of the nervous system, and that its effects are due to it *as chloral*, and not as chloroform. Admitting that sea-sickness depends upon irritation of the medulla oblongata, the marked action of chloral in controlling this affection would tend to

prove the truth of the theory that its action is not through the medium of the vaso-motor system, but that it acts directly upon the cord itself. It matters little, practically, whether its action takes place as chloral directly upon the spinal cord, or as chloroform through the vaso-motor system; the point of importance to the physician is, the great advantage of chloral over chloroform, in its comparative slowness of action, *its safety and ready control*.

Bouchut supposes that chloral is eliminated from the blood by the kidneys, and this, he thinks, explains the frequently marked modification of the urine, as shown by its density a few hours after the administration of the drug.

The temperature, generally, is slightly lowered, which is probably due in part to an arrest of cell metamorphosis from sedative influence, and partly to a diversion of blood from the surface toward the center of the body through capillary contraction.

Some observers have claimed that chloral produces cerebral congestion, but the experiments of Dr. Andrews do not confirm this. In the article referred to Dr. Andrews says, "If congestion occurred, the waking from chloral sleep would not be without marked after-effects, and especially there would not be such rapid recovery of tone as is observed in cases where large doses have been administered."

That chloral exerts a powerful effect upon the cardiac ganglia, depresses, to a certain extent, the circulation and arterial tension and arrests the functional activity of the brain by diminishing its blood supply, may, I think, be fairly conceded.

As regards the therapeutical action of chloral, it will be sufficient for the purpose of this report to briefly indicate the range of its application in the treatment of

the insane, together with an allusion to a few of the more important general diseases in which it has proved beneficial.

As a hypnotic chloral hydrate is probably unequaled; hence its great value, when judiciously and discriminately used, in the early stages of insanity where insomnia almost invariably obtains. Where sleeplessness is the result not of pain but of cerebral vascularity or hyperæmia, chloral is the remedy *par excellence*, and may be given with safety, in doses of from twenty to forty grains and repeated in a half or an hour if necessary. It seldom fails to produce sleep—of a natural character—which usually lasts from four to eight hours. It rarely produces headache, seldom impairs the appetite or disturbs the stomach or bowels. Repetition does not diminish its power; the dose scarcely ever requires to be increased, but, on the contrary, may frequently be reduced and still produce the desired effect. Where there is restlessness and muscular activity during the day, chloral, in small doses—ten to twenty grains—is very efficacious.

With the occasional exception of nausea and vomiting, chloral, when properly administered, almost never gives rise to any ill effects or unpleasant symptoms of any kind, although from what has been said in regard to its physiological action, I need scarcely add that it should be used with caution where there is cardiac debility, the result of *organic* disease of the heart. Dr. DaCosta, in his Toner lectures, says: "Not only in cases of cardiac adynamy, but in other cases where an enlarged and powerful ventricle is faltering before a tight stenosis, chloral is contraindicated as it has been found, under these circumstances, to produce a paralyzing effect upon the heart of a most undesirable character."

The danger, in such cases, may be greatly diminished, if not entirely averted, by combining digitalis with the chloral.

Where insomnia depends upon painful impressions on the periphery, opium, in some form, may be combined with chloral with good effect. Reasoning physiologically, these two remedies would seem to be antagonistic in their action, and theoretically this is true. But in practice we are often obliged to depart from theoretical teachings and not infrequently prescribe remedies empirically—from a knowledge founded on clinical experience.

Sedatives, such as hyoseyamus and the bromides, may be, and often are, given in combination with chloral with most excellent results; the sedative serving as an adjuvant to promote and prolong the effect of the chloral.

In cases where stimulants are indicated—cases of delirious excitement or acute mania with rapid tissue changes—they, also, may be given with chloral. I know of at least one large hospital for the insane where it has been a common practice to use sherry wine with chloral in solution, partly to disguise the taste of the latter, and partly because it is thought to act more promptly when thus combined.

Owing to its pungency, chloral should always be largely diluted when given, as otherwise it produces a disagreeable, burning sensation in the fauces and stomach. Dr. Squibb, of Brooklyn, N. Y., recommends the use of ice-water, and would exclude syrup, as a vehicle for chloral. Experience has fully shown that Dr. Squibb's form of administration is the best one known to us.

Chloral possesses remarkable qualities as an antispasmodic, and its great value in the treatment of certain

convulsive and spasmodic affections corroborates, to some extent, the opinion that it acts directly upon the medulla oblongata. Its use, during the paroxysms, in spasmodic asthma; in puerperal and infantile convulsions, in tetanus, whooping-cough, chorea, sea-sickness and as an antidote in cases of poisoning by strychnia has been followed by most gratifying results.

Bouchut, in a memoir read before the French Academy of Sciences, reports three cases of cerebral rheumatism in each of which a cure was effected by the use of chloral in doses of from forty-five to ninety grains, once or twice, at short intervals, the object being to make a decided impression at once, and thus obtain an immediate abatement of the violent agitation and delirium usually present in this affection.

The *Hebdomadal Gazette*, June, 1875, reports four cases of confirmed and severe cerebral rheumatism which were successfully treated with chloral hydrate.

Dr. Lowenstamm, a German physician, reports a case of severe convulsions occurring in an infant sixteen days old. Two grains of chloral were given every hour; the convulsions soon diminished in frequency and intensity, and on the following day the child was entirely free from them. The same writer also reports numerous cases of a similar kind, in which he derived marked benefit from the use of chloral. Dr. Polaillon reported to the Medical Society of Paris that, encouraged by the benefit he had derived from chloral in puerperal convulsions, he had twice resorted to it in infantile convulsions. He gave it in the form of an enema (chloral, grs. iij. aquæ 3v.) Calm sleep and a cessation of the convulsions followed, and a similar enema, repeated twenty-four hours later, completed the cure. This observer concludes that chloral is an eminently useful remedy in convulsive diseases.

Dr. George N. Monette, of New Orleans, reported, in the *American Journal of Medical Sciences* for October, 1875, a case of traumatic tetanus which recovered under the use of chloral. Mr. J. H. Salter records in the *Practitioner* for December, 1876, a case of acute traumatic tetanus which recovered under repeated subcutaneous injections of chloral. The same number of the *Practitioner* contains a report of an obstinate case of chorea minor which, after having resisted other remedies, was treated with chloral, forty-five grains, twice daily, in the form of an enema; only slight improvement following, the dose was increased to sixty grains twice a day. Under this treatment a permanent cure was effected in fifteen days.

A series of experiments, reported to the British Medical Association by J. Hughes Bennett, shows that chloral possesses considerable value as an antidote in cases of poisoning by strychnia. Dr. Bennett found that a lethal dose of strychnia administered to a rabbit and followed immediately by a dose of chloral failed to produce death. The antagonizing effect of the chloral was lessened in proportion to the interval between the administration of the drugs. Several instances of the successful use of chloral in cases of strychnia poisoning have already been reported in the journals. Dr. Levinstine, a German physician, reports an interesting case where strychnia apparently prevented death from an overdose of chloral, the patient, a man, having taken by mistake six drachms of the latter. Further investigations in this direction are desirable.

Chloral has been used successfully to produce partial anæsthesia in tedious cases of natural labor, in cholera, as an ectrotic in variola and as a disinfectant dressing for foul ulcers. Professor Bouchut, of Paris, habitually uses chloral to produce surgical anæsthesia in children

for the purpose of opening abscesses, extracting teeth, etc. He refers to ten thousand cases where he has employed it, and in this immense number he has never met with a fatal accident. He regards it as the best remedy we have for chorea, and adds, that it is absolutely necessary where the movements are so violent as to excoriate the skin and cause death.

Surely the results which I have mentioned must tend to establish the value of chloral as a therapeutical agent, and also afford some ground upon which to base its claims to a prominent place in the list of remedies for certain nervous affections.

As regards the so-called "chloral habit" I can only say that I have used chloral very largely in my practice—commencing with its introduction to the notice of the profession in America—and I have yet to meet with a case. Inquiry among professional brethren in my vicinity has failed to discover any instances of it, and if any of the members of this Association have met with cases in their practice I would like to hear from them.

Death may result from the improper employment of any potent medicine, but this fact can not serve as an argument against the proper use.

CASE OF HELEN MILLER.—SELF-MUTILATION.—TRACHEOTOMY.

REPORTED BY WALTER CHANNING, M. D.
Late Assistant Physician New York State Asylum for Insane Criminals.

Mrs. Helen Miller was first admitted to the State Asylum for Insane Criminals at Auburn, N. Y., in October, 1872, and discharged from there in December 1874. No medical record was made of her case, but it is stated that she passed most of the time in bed, her disease being "indisposition." Various sores made their appearance on her body, supposed to be syphilitic though she denied ever having had syphilis. She was discharged as "cured" on the expiration of her sentence. During her two years residence at the Asylum she made no attempt to mutilate herself.

A few months only after her discharge, she was again arrested for grand larceny and sentenced to the State Prison at Sing Sing for five years. Being anxious to be transferred to the Asylum, she began to "cut up," as she expresses it, and finally was transferred and re-admitted in July 1875.

The following information concerning her previous history, we have obtained from a physician in New York, who, Mrs. Miller stated, was a friend of hers. In a letter kindly written in answer to our enquiries, he says: "I first saw Helen Miller seven years ago when she visited my office and proposed putting herself under my care. Shortly afterward she was arrested, tried and convicted of stealing from Dr. ——. She has been the patient of a dozen physicians of my acquaintance. She never stole anything from me, but would never sit

alone in my office for a single moment, preferring to remain in the street. I spoke to her about it and she said she was afraid that something might be stolen and I would probably ascribe it to her, knowing that she had served a term in Sing Sing. Her last trial was for stealing a stuffed canary and a microscope lens. I had my doubts of her guilt in this case, as she had been at my office just before and after the time of the robbery. She swore she had never been tried before, but the evidence of her former conviction was shown by the District Attorney and this caused her second conviction. I believe her to be a kleptomaniac, if one ever existed, and probably her rooms are filled with things taken from doctor's offices. I was treating her for dysmenorrhœa, and was also trying to break her of the opium habit. I never saw the slightest evidence of her having led a fast life. She always dressed plainly and was cleanly in her person and conversation. Had a habit of boasting of all the physicians who had attended her and was fond of claiming acquaintanceship without much ground. I never thought her perfectly sane."

Mrs. Miller was first seen by us in August 1875, a month after admittance to the Asylum. She was an intelligent German Jewess, rather below medium size, thirty years of age, hair and complexion light. She was then thin in flesh, pulse weak, hands red and cold, lips blueish, tongue pale and tremulous when extended. But few of her teeth remained, and her face had a pinched look. Her smile was very pleasant, but her expression at other times was suspicious and irritable.

She was in bed suffering from what seemed to be a severe attack of hæmatemesis. Various remedies were applied, but the hæmorrhage continued several days unabated. Her bodily condition continuing, however,

perfectly good, notwithstanding the blood lost, simulation was suspected: treatment was suspended and the bleeding ceased. The coffee ground appearance of ejected matter she had imitated by vomiting food into her chamber-vessel and covering it with blood, (pricked and sucked from her gums,) and urine. This attack was followed by others of hysterical dysmenorrhœa, and dysentery. Through September she was confined to her bed most of the time with these attacks. Toward the end of the month, she became much depressed, feeling that she had a long sentence to serve in prison, and that she had no friends and but little to hope for in the future. On the 25th of the month, in a paroxysm of despair, she broke twenty three panes of glass. With a small piece of the glass she cut her left wrist and inserting it into the wound endeavored to reach the arteries. Her right hand, which she had used to break the window-panes, was slightly cut in several places. The wound of the wrist was superficial, an inch in length and drawn together with two stitches. She seemed to suffer almost no pain when the stitches were put in. She was much agitated, trembling from head to foot, and crying, but however, said nothing. The next day she was very repentant for what she had done and said that she would never do it again, but in about three weeks she again became "discouraged," to use her own word, or depressed, irritable and suspicious, and being enraged because she was refused opium, cut her arms to avenge her wrongs. The wounds were immediately below the elbow, on the inner surface of the forearm where the flexors are thickest. One cut was six inches in length, the other four. The skin and superficial fascia were cut in a straight line and as cleanly as if done by a surgeon, but the muscular tissue below was hacked in every direction and nearly to the

bone. She was crying and endeavoring to conceal the cuts when seen, and would say nothing as to the situation or number of pieces of glass she was said to have thrust into the wounds. As before she was much agitated, but sat perfectly still and allowed the wounds to be probed. For greater convenience she was etherized, several pieces of glass were then found deep in the wounds, after removing which the cuts were brought together with stitches. The wounds suppurated freely and at intervals of a few days, pieces of glass and splinters of wood were found and removed. The wounds healed rapidly, she gained in flesh and strength, worked about the ward, was very tractable and promised never to injure herself again. In six weeks the wounds were healed and she again became "discouraged." As before she was very irritable and abused the other patients, saying they were trying to torment and tantalize her. The attendants she also felt were "down on her." Some trifle again aroused her anger, and with the same motives as before she cut both her arms exactly where she had cut them on the previous occasion. She was etherized and two pieces of glass and a splinter of wood removed from the right arm, after which the wounds were brought together with stitches. The right arm healed readily, but the wound in the left arm became indolent, the granulations were pale and flabby, and after a few days an erysipelatous inflammation showed itself, followed by constitutional symptoms. These culminated in an attack of œdema glottidis, of such severity that suffocation appeared imminent. The tissues of the neck were much infiltrated, the face became livid and the pulse was hardly perceptible at the wrist. As a last resort, all remedies proving futile, tracheotomy was performed, a German, gutta-percha tracheotomy tube being used.

The operation gave immediate relief, but the patient being very weak and the wound showing no activity, (being in a sloughy, erysipelatous condition,) her chances of recovery seemed small. She rallied however, her strength increased, the wound began to granulate healthily and in eleven days the tube was removed. Three weeks after the operation, the wound had entirely healed, and she breathed naturally through her throat. The arm had also nearly healed during this time. During recovery an unusual degree of tetanus was overcome by the use of eighty grains of chloral daily. The effects of the prostration occasioned by the operation did not entirely disappear for nearly two months. During this time she was very patient, thoughtful of others, anxious to do darning or other light work, very neat in her person, a constant attendant at church, always cheerful and hopeful, and very grateful for what had been done for her. Much of the time she read and also wrote long letters to some of her old doctors in New York, filled with eulogies of all that had been done for her. She talked perfectly coherently and improved decidedly in general health, gaining in flesh and acquiring a good appetite.

This period of apparent convalescence continued about two weeks longer, when she became depressed as before, and cut her arms in the same places. From this time (December, 1875,) to April, 1876, she cut her arms and inserted glass, splinters and other objects into the wounds at intervals of six weeks, there generally being a wound of some kind in one arm. In April she was in a quiet, reasonable condition, and expressed a strong desire to be transferred to the Prison at Sing Sing. She was told this would be done if she would not cut herself for six months. This time had almost expired when, as usual, for the merest trifle, she again

mutilated her arms in about the same places, and buried pieces of glass in the wounds. The next cutting occurred six months after this. The wound in one arm was seven inches in length and deep, in the other superficial, and not more than three inches long. In the deep wound there were as many as thirty pieces of glass, several long splinters, the longest nearly six inches in length, and five shoe-nails. Some of the pieces of glass were covered with cloth, and could not therefore be felt with a probe.

In June, 1877, she cut herself for the last time. The gash was superficial, only two inches in length, and made with a piece of tin. She said she had a piece of glass in her arm, and wished to extract it. The day after this the wound was probed, and she was told decidedly that there was no glass in the arm. Angry that her word should be doubted she, a few minutes afterward, scratched her forehead slightly with a piece of glass, and then broke her chamber vessel to pieces on the wall over her head.

The following is a list of articles which have been removed from her arms and saved: ninety-four pieces of glass, thirty-four splinters, two tacks, four shoe nails, one pin, one needle. Several pieces of glass and the pins and needles first removed were unfortunately mislaid and lost. Including these the whole number of objects removed amounted to one hundred and fifty. Once she cut herself with a piece of tin, and once with a sharp splinter, but on all other occasions with glass. The glass was generally taken from windows, but once from a hand-glass, and once from a bottle. The pieces were of various sizes and shapes. Some were pointed, three inches in length, and one-half inch wide at the broad end; others were square, oblong, etc. The pieces from the hand-glass and bottle varied from a quarter of an

inch to an inch in length and diameter, and were rough and jagged. The smallest pieces were the size of small cherry stones. The longest splinter was nearly six inches long, the shortest less than one-fourth of an inch. The shoe nails, tacks, pins and needles were of ordinary size.

The screen in Mrs. Miller's room, over the windows, was kept locked; she was not allowed to use any article made of glass, was constantly watched, and if at all excited searched and secluded, and on a few occasions her hands were restrained; but, notwithstanding these precautions, she would procure the glass. On one occasion she wrapped a very small, sharp piece in a rag, and held it in her mouth; on another it was concealed in the vagina, and several times it was given her by other patients. Some pieces of glass she removed, and others she smeared with blood and *said* she had removed. If pieces by any accident came out, as they occasionally did, she saved them for the medical officers with scrupulous care. She would talk of her wounds as if she herself was the nurse, and the case was an interesting one for the doctors. When the inflammation was intense she would allow the wounds to be enlarged, and probed incessantly for an hour if necessary. Often in extracting a small splinter or a piece of glass wrapped in a rag, deep in the wound, it was difficult to obtain a grasp sufficiently strong to draw it out, and the forceps would slip off or a bit of ragged muscle would become entangled in them. The pain these things caused her was so little, however, that she would hold her arms generally perfectly still, and always absolutely refuse to take ether. Strange as it seems she apparently experienced actual erotic pleasure from the probings she was subjected to. She stated that she felt no pain when she inflicted the wounds.

During the past two years patient has had a distinct history of syphilis, shown by the characteristic eruption and pains in the bones that frequently confined her to the bed. She has been very hysterical, having frequent attacks of choking, globus hystericus, and imagined at one time that she had a spool in her throat, and could only swallow through the hole in the middle. For several days she refused food, but no attention was paid to her, and she recovered, being fed surreptitiously as usual. Her thieving propensities have often shown themselves. She would pick up any little thing she saw (particularly, when off the ward,) whether of any service to her or not, and always stoutly asserted, when discovered, that the articles were hers.

Her happiest periods were when the wounds were healing, and she was an object of surgical interest. She took a special pride in having the attention of the physicians directed toward her. At these times she worked about the ward, and even insisted on doing scrubbing and other heavy work, experiencing no inconvenience from the wounds. But even at these times, when tranquil and rational in conversation, and showing both unusual intelligence and cheerfulness, her tongue was very tremulous, her pulse rapid, and her whole system in a condition of such tension that the merest trifle would throw her off her balance. She was evidently struggling with all her might to control her actions with the slight amount of will remaining. These remissions would last only a short time, to be succeeded by doubts, suspicion, jealousy of all about her, and final despondency, in which state she was constantly angry with the other patients, thinking that they were maligning and persecuting her, and in utter hopelessness and despair as to herself. She would feel

that she must get relief in some way, and the *idea* of death seemed welcome, but she would hesitate and doubt, and fear to go any further. Finally, however, an innocent remark made to her by another patient would be construed into an insult of the blackest kind, or a simple refusal to give her extra diet or medicine, would be looked upon as a reflection on her honesty, and wishing to end her misery she would endeavor to kill herself and punish her enemies, and thus avenge her wrongs. That she should endeavor to commit suicide, and to make others suffer, by cutting the muscular tissue of her own arms, is only an example of the wonderful mystery of insanity.

When she felt a paroxysm approaching she would beg to be secluded. Then yielding to her feelings she would pour forth a volley of curses and abuse toward the other patients. Day and night she would continue this, taking no food, and sleeping none. Sometimes she would tear her clothes off. When a paroxysm was at its height she would stop and reason, but generally end by declaring that the doctors were very good and kind to her, but she would not be good, and wanted to be let alone. She never, on any occasion, abused the physician, and never attempted to injure any one. The outbursts lasted from one to several days, and terminated either by self-mutilation or utter exhaustion. Her former intervals of quiet and coherence are becoming less and less frequent. For the last year her delusions of persecution concerning the other patients have been very persistent, influencing her daily conduct, keeping her excited and noisy, and overcoming the little power left over her actions. Already indications of dementia are beginning to show themselves.

In looking over a large number of asylum reports, old files (not entirely complete,) of the *AMERICAN JOUR-*

NAL OF INSANITY, the *Journal of Mental Science*, and the *English Psychological Journal*, and the writings of Pinel, Arnold, Haslam, Burrows, Prichard, Connelly, De Boismont, Rush, Poole, Bucknill and Tuke, Forbes Winslow, Griesinger, Blanford, Maudsley and others, we find but few cases of self-mutilation similar to the one reported above. Burning, scalding, decapillation, emasculation are found to be the favorite methods. One patient bit his finger off; another cut a hole in his abdomen, drew out the intestines and cut a small portion off. Haslam reports the case of a female who mutilated herself by grinding glass to pieces between her teeth, and so it would be possible to go on and mention many other methods of torture.

One of the most interesting recent cases was that reported by Dr. J. B. Andrews, of the Utica Asylum, in the JOURNAL OF INSANITY for July, 1872, in which he removed three hundred needles from the body of an insane female patient. The needles had all been inserted before she became a patient in the Asylum. The patient was hysterical and in some ways resembled Mrs. Miller in disposition.

In the *Journal of Mental Science* for July 1875, Dr. Robie of the Dundee Asylum, reported the case of a woman who swallowed a circular tea-caddy one and one-fourth inches in diameter with suicidal intent.

Though in some of the reported cases the patients had concealed knives and other weapons with which to inflict injuries, most of the attempts were sudden and unpremeditated. In the present case the hysterical element was always present. The wounds were made as lacerated as possible, the garments were covered unnecessarily with blood and a time of day chosen when help was sure to be at hand. Everything was done to produce as much effect as possible. Though

the muscles were sometimes hacked to the bone, an artery sufficiently large to require ligation was never injured.

Griesinger gives cases in which insane persons simulate attempts at suicide. No doubt Mrs. Miller sometimes attempted simulation, especially on the day after the last cutting, when angry that her word had been doubted, she made a scratch on her forehead, thereby drawing blood which trickled down her face and then with a loud crash broke a chamber-vessel over her head. Her idea was to convey the impression that she wished to dash her brains out.

ON THE SO-CALLED MOTOR CENTERS IN THE HEMISPHERES OF THE CEREBRUM.

BY PROFESSOR MAURICE SCHIFF, OF FLORENCE.

Translated from the Italian by THEODORE DEECKE.

I.

ON NERVE CENTERS.

If we, with the majority of physiologists, call those parts in which a sensible excitation, sensitive or centripetal, is transformed into a motor impulse, nerve centers, all movements can have diverse centers, according to the nature of the centripetal excitation by which they can be produced. Thus we know that the motor nerves of the diaphragm have a primary center in the spinal medulla, since after the destruction of the medulla oblongata certain sensible excitations still produce, in a reflex way, a contraction of the diaphragm and a dilatation of the thoracic cavity. These motor nerves extend into the medulla oblongata, in which the excitation from the venosity of the blood produces the complicated movement of inspiration, in which the contraction of the diaphragm participates. In this way the second center, for the movements of the diaphragm, becomes the first center for certain associate movements into which the contraction of the diaphragm enters. The medulla oblongata contains, as it seems, not only one, but several centers, traversed by the continuations of the motor nerves of the diaphragm, centers which place these motor nerves in relation to those groups of motor nerves which produce evacuation, vomiting, singultus, etc.

So also by volition—that is, by a function of certain central fibers of the cerebrum, the movements of the diaphragm can be affected, and we can voluntarily contract it, separate from the action of the inspiratory muscles, and even in opposition to these, that is with the glottis closed. Thus we can but admit that the motor fibers of the diaphragm traverse the medulla oblongata, and meet in the cerebrum a third center, or a third group of centers in which they are brought into connection with the central parts of

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sensitive nerves. Or, we can suppose, with the majority of the physiologists, that the motor fibers of the diaphragm terminate in the medulla oblongata in a central point, and that the fibers of the cerebrum send continuations towards this terminal point, through which they can produce the movement. These continuations should be regarded as centripetal, and not motors. I do not believe that for the present we are able to decide the question between these two possibilities. But if the analogy of other nerves, which are excited by voluntary movements, is of any value, I do not see why we should deny the existence of a cerebral center of the phrenic nerve, since the arguments in favor of the cerebral centers of other motor nerves are not of a more convincing nature. Though the movements of the diaphragm can be produced by excitations of certain points of the cerebrum, these excitations during normal respiration manifest themselves only, by an augmentation of the number and by the precipitate character of the inspirations.

Admitting now, but not yet conceding, that the motor tracts of the diaphragm continue into the cerebrum, what would be the true center of its movements? The answer in this case is not quite easy, as it depends entirely upon what we understand by a true center. It seems to me, if we admit that the center in dispute, stands in a special and particular relation to the production and excitation of movements, we must meet the question; whether the motor center must have a certain predominance over other parts of the nerve tracts, which transmit movements; or whether there exists simply a certain condition which can not be found in other parts of the transmitting tracts. The three groups of motor centers of the diaphragm, the spinal, the bulbar and the cerebral, differ from each other through the excitations by which they become active, and by the associations of the contractions of the diaphragm. But the same movements are produced by diverse reflex action in all the three centers specified.

The motor tract is excitable by reflex action at every point, and in this excitability there is no characteristic difference; the one point is simply a continuation of the other, and the inferior points maintain for an indefinite time their excitability, even after the destruction of a superior point; each of these points in question acts solely on the condition that the local reflex action has produced. From the beginning to the end of this tract there can not be found one point which stands in such a special or particular relation to the movement, that we could locate in it the real center of the movement. Here, either every point is a center or none. We

can search for special centers of the diverse associations in which the movements enter, but this would not be a motor center in the usual sense, because it does not in anything limit the movement itself; no one center has a special superiority over it, which is wanting in the other points. We might conveniently call the true center that cerebral part of the tract, with which it ends, but it will be seen that, in doing so, we are led by an anatomical consideration, and not by a physiological, since, physiologically, we demand that the true center, which we seek, should have some special influence upon the movement or upon the motor nerve; but the cerebral tract differs from the other points solely by the reflex actions, and not by its modes of producing or sustaining the movement itself.

A true physiological center for the movements of the diaphragm in a determined and limited point of the central nervous system has not been indicated by facts; and moreover its existence is not necessary for the synthesis of the facts known; we have, scientifically, no need of it. We can search point after point for the different centers for grouping together and associating different movements; but these would not be motor centers in the usual sense, since they do not limit the movements of a single muscle and because these centers could just as well be constituted from the arrangements of the central elements of sensation. From this it would be seen that, contemporaneously irritated in a given point, they would reflect over different motor elements, or rather motor districts, which would be found in various points far distant from the center.

A brief reflection will suffice to show, that a true motor center, in the sense indicated, for the other muscles, as far as the diaphragm is concerned, is not necessary, the apparent difference between this or that, exists only in the nature and in the seat of the excitation, and not in a difference of the nature of certain privileged points in the central motor tract. But the idea of the physiological necessity of special motor centers for the voluntary muscles, which we see repeatedly expressed every year, is entirely wrong; on the contrary, these special centers are superfluous and useless, yet we must submit to facts and admit their existence, as proved by experiments and facts. We will first consider, in a general way, the nature of the facts and the experiments which are claimed to prove the existence of special motor centers. How does the existence of a special motor center manifest itself in general? This depends entirely upon the sense in which the expression "center" is used.

sensitive nerves. Or, we can suppose, with the majority of the physiologists, that the motor fibers of the diaphragm terminate in the medulla oblongata in a central point, and that the fibers of the cerebrum send continuations towards this terminal point, through which they can produce the movement. These continuations should be regarded as centripetal, and not motors. I do not believe that for the present we are able to decide the question between these two possibilities. But if the analogy of other nerves, which are excited by voluntary movements, is of any value, I do not see why we should deny the existence of a cerebral center of the phrenic nerve, since the arguments in favor of the cerebral centers of other motor nerves are not of a more convincing nature. Though the movements of the diaphragm can be produced by excitations of certain points of the cerebrum, these excitations during normal respiration manifest themselves only, by an augmentation of the number and by the precipitate character of the inspirations.

Admitting now, but not yet conceding, that the motor tracts of the diaphragm continue into the cerebrum, what would be the true center of its movements? The answer in this case is not quite easy, as it depends entirely upon what we understand by a true center. It seems to me, if we admit that the center in dispute, stands in a special and particular relation to the production and excitation of movements, we must meet the question; whether the motor center must have a certain predominance over other parts of the nerve tracts, which transmit movements; or whether there exists simply a certain condition which can not be found in other parts of the transmitting tracts. The three groups of motor centers of the diaphragm, the spinal, the bulbar and the cerebral, differ from each other through the excitations by which they become active, and by the associations of the contractions of the diaphragm. But the same movements are produced by diverse reflex action in all the three centers specified.

The motor tract is excitable by reflex action at every point, and in this excitability there is no characteristic difference; the one point is simply a continuation of the other, and the inferior points maintain for an indefinite time their excitability, even after the destruction of a superior point; each of these points in question acts solely on the condition that the local reflex action has produced. From the beginning to the end of this tract there can not be found one point which stands in such a special or particular relation to the movement, that we could locate in it the real center of the movement. Here, either every point is a center or none. We

can search for special centers of the diverse associations in which the movements enter, but this would not be a motor center in the usual sense, because it does not in anything limit the movement itself; no one center has a special superiority over it, which is wanting in the other points. We might conveniently call the true center that cerebral part of the tract, with which it ends, but it will be seen that, in doing so, we are led by an anatomical consideration, and not by a physiological, since, physiologically, we demand that the true center, which we seek, should have some special influence upon the movement or upon the motor nerve; but the cerebral tract differs from the other points solely by the reflex actions, and not by its modes of producing or sustaining the movement itself.

A true physiological center for the movements of the diaphragm in a determined and limited point of the central nervous system has not been indicated by facts; and moreover its existence is not necessary for the synthesis of the facts known; we have, scientifically, no need of it. We can search point after point for the different centers for grouping together and associating different movements; but these would not be motor centers in the usual sense, since they do not limit the movements of a single muscle and because these centers could just as well be constituted from the arrangements of the central elements of sensation. From this it would be seen that, contemporaneously irritated in a given point, they would reflect over different motor elements, or rather motor districts, which would be found in various points far distant from the center.

A brief reflection will suffice to show, that a true motor center, in the sense indicated, for the other muscles, as far as the diaphragm is concerned, is not necessary, the apparent difference between this or that, exists only in the nature and in the seat of the excitation, and not in a difference of the nature of certain privileged points in the central motor tract. But the idea of the physiological necessity of special motor centers for the voluntary muscles, which we see repeatedly expressed every year, is entirely wrong; on the contrary, these special centers are superfluous and useless, yet we must submit to facts and admit their existence, as proved by experiments and facts. We will first consider, in a general way, the nature of the facts and the experiments which are claimed to prove the existence of special motor centers. How does the existence of a special motor center manifest itself in general? This depends entirely upon the sense in which the expression "center" is used.

The existence of a cilio-spinal, and a genito-spinal center in the spinal medulla was formerly admitted. These so-called centers have been adduced from very exact observations, but there is nothing in their nature which would logically justify the name of centers for the same.

Budge has found that by irritating the spinal medulla, excluding as much as possible, an interference of reflex action, a dilatation of the pupil can only be obtained from a limited tract, located in the inferior cervical and the superior dorsal part, and from this tract, nerves which dilate the pupil arise. This observation does not prove more than that this tract of the medulla, when it becomes irritated, has in regard to the pupil the same property as the peripheral nerves which arise there. This too would have led to recognizing a center by the following considerations.

1. That in the spinal medulla the centers can or must be excitable similar to the peripheral nerves. And to limit the center to this tract we will have to prove moreover,

2. That in this tract all the reflex actions can take place which produce a dilatation of the pupil.

3. That outside of the limits of this tract there can no reflex actions be produced which dilate the pupil.

On the other hand we can prove,

1. That the peripheral nerves after they have traversed in various directions a certain tract of the white substance enter into the true central part of the medulla, in which they produce reflex actions, losing their peripheral excitability and where they are no more irritated by mechanical or galvanic agencies.

2. That the transverse division of the medulla above the limits of the so-called cilio-spinal center, renders impossible certain reflex actions which took place in the pupil by sensitive nerves of the inferior part of the body, the spinal origin of which is still in continuity with the supposed center.

3. That every transverse section through one-half of the medulla above the supposed center, has still the same paralyzing influence upon the pupil as the division of the nerves which arise from the center.

It will be seen then as I made evident many years ago, that the true center of reflex action for the dilatation of the pupil is located, not in the part, but undoubtedly above the part from which an irritation produces a dilatation, and that the observations of Budge must be explained in this manner, that the pupilar nerves proceed from a superior reflex center, in the supposed cilio-spinal

center, of the nature and of the property of the peripheral nerves and which has here lost its central nature.

The error of Budge arises from the circumstance that he endeavored to prove the existence of a center exclusively by means of irritation. This is at least in the medulla, an impossibility. The above remark may also be applied to the genito-spinal center of the same author. Hitherto we have no knowledge of a single specially limited center in the medulla spinalis of the higher vertebrates; but the frogs have in the medulla a special central region for the movement of the lymphatic vesicles. When we now leave these pseudo-centers and examine the other special centers, which have been claimed to exist in the central nervous system, we find, in the first place, a species which might be called anatomical centers. We know two of these, the vaso-motor center and the gustatory center, both located in the medulla oblongata.

Following, by means of dividing the medulla, the tracts of its vaso-motor nerves, we have found that they all continue finally into the medulla oblongata, in which the vaso-motor nerves of the skin and of the extremities terminate, in so far as this can be recognized by effects of paralysis. The vaso-motor nerves of the intestines pass for a great part through the medulla oblongata, and continue on through tracts in the pedunculi cerebri. We have also recognized that many vaso-motors of the head are located in the trigeminus and in the nerves of the tongue, which, arising in the cerebrum and passing through its substance terminate, in the medulla oblongata. The vaso-motor nerves which accompany the vagus, likewise enter the medulla oblongata, so that finally, in a small space there will be found meeting together, all the vaso-motor nerves of the body. The reflexions which operate at the same time on all the vaso-motor nerves, must act on this central point, and thus it will be found that, dividing the medulla oblongata, the vaso-motor nerves which traverse the spinal medulla in its entire length, will have lost an essential part of their excitability, that they will be partially paralyzed, although many other causes of reflex action, as I have shown long ago, may still act upon them by means of the medulla spinalis. In this sense I have declared that in the medulla oblongata there will be found a central point for the vaso-motor nerves, that is for all the vaso-motor nerves.

It will be seen that, taken in this sense, the central point is essentially anatomical; and I am not responsible for any exaggerations, which some years later, two authors committed, who con-

firmed my results, not by the way of transverse sections, but by the much less acceptable method of galvanic irritation, and who believed they saw in the medulla oblongata the unique physiological center of the vaso-motors, and who have claimed that outside of this part of the centers, no reflex action could have an effect upon the vessels, and that the latter, when separated from the medulla oblongata, would be entirely paralyzed. It is singular that recently I have been accused of contradicting my own doctrine, because I have, though declaring the medulla oblongata the center of the vaso-motors, at the same time and later published experiments proving that the medulla spinalis suffices to render possible a reflex action of these nerves. But it is evident that my way of observing, which I have sustained for over twenty years, does not imply that all the vaso-motor nerves originate in the medulla oblongata, neither that all the vaso-motors terminate in that part of the medulla. On the contrary I believe that I have found and communicated facts which prove the reverse of these assertions, and a part of these facts have been confirmed during the latter years by Goltz.

Bernard speaks of a center, the irritation of which produces diabetes. I believe I have proved that the district of the nervous centers, from which glycosuria can be produced, is more extended than Bernard has admitted, who gives to this point an extension only of a few 1-10 of an inch, and that the points from which we can produce a more copious secretion of sugar, are identical with the central points of the vaso-motor nerves, and that this property of the same is not due to a special influence, but exclusively to the action upon the vessels.

Another anatomical center is the gustatory center. The nerves of taste enter the central nervous system by two distinct trunks, through the nervus trigeminus and the nervus glosso-pharyngeus. It does not seem that the fibers of the latter pass the boundary of the medulla oblongata; the fibers of the trigeminus, which enter into the pons Varolii, do not reach farther than the bulb. If we make at the level of the superior roots of the glosso-pharyngeus with a small bent knife, a small oblique incision in a nearly transverse direction of the size of about two to three mm., through the lateral columns of the medulla oblongata, so that the incision divides these columns a little beyond the median line, there follows, at the first moment, a copious secretion of saliva, and when this diminishes, or has ceased, it will be remarked that the taste is lost on the corresponding half of the tongue, as well at the base as towards its

point down to the median line; a tasting substance applied to this half of the tongue will not produce any salivation. There are, besides, complicated lesions of sensibility in other parts of the trigeminus and partial motor paralysis in the corresponding half of the face and, if the lesion is much extended, an alteration of the voice. These experiments have been made on cats.

Before proceeding to other centers we have yet to return to the vaso-motor centers, in order to add some words regarding the relation of these centers to the animal heat. It is known that the existence of centers which produce, and centers which diminish the production of animal heat has recently been claimed. These centers do not exist, but we will reproduce the experimental facts on which the hypothesis of their existence is founded. The original experiments were made on rabbits, which are better adapted to demonstrate the phenomena in question than dogs, though the same can be reproduced in dogs. The lesions with which we have to treat are followed by a more or less extended and lasting dilatation of the vessels. We have already said that all the vaso-motor nerves do not terminate in the medulla oblongata, but that many of the vascular nerves of the intestines and of the liver traverse the pedunculi cerebri. If we make a small transverse incision, precisely limited to the origin of the pedunculus cerebri from the bulb, without producing a noteworthy hæmorrhage, the abdominal vessels become fuller. Even if we limit as much as possible the loss of blood, there will be an increase of heat in the abdominal cavity, and as there is nothing in the rest of the circulation or in the respiration to reduce the heat considerably, there is, therefore, an increase in the temperature of the blood. Tscieciŭscin (Du Bois Raymond Arch. 1856,) who has observed in some experiments a rise of temperature in the rectum, concludes that there exists in some part of the cerebrum, a center, the presence of which moderates the production of animal heat. Unfortunately, he did not know, or did not take into consideration the experiments on the central course of the vaso-motors of the intestines, of which I gave an account in the years 1845 and 1859, and which would not only have explained, but also predicted the phenomena observed by him. At a later period these experiments were repeated, partly with the same effect as observed by Tscieciŭscin, partly with a contrary effect, which can well be imagined when we consider that the lesions, if too extensive, may lead to paralysis so extended as to produce a stasis in the circulation and respiration, which in turn creates an excessive loss of heat, that will

more than suffice to obscure the phenomena above mentioned. Haidenhain, who in several cases has confirmed the experiments of Tsciecuscin, remarks that we have not to deal here with an economization of heat, since the thermometer placed below the skin shows after the operation a maximum superior to the normal. We can not put so much weight on this observation. The maximum height proves solely that the blood has become hotter; but the loss of heat from the skin corresponds essentially with the time the thermometer has been employed, and not with its absolute maximum. In this regard the thermo-electric apparatus would be more decisive than the ordinary thermometer. If, then (admitted, but not conceded,) it should be proved that the loss through the skin is a little augmented, this inconsiderable increase must be relatively less than that which the blood gains in heat from the dilatation of the abdominal vessels. Nobody has ever pretended that in these experiments the matter depended exclusively upon an economization of heat by the small rise of temperature in the skin. The blood which is more largely in contact with the intestines must become hotter.

When we make the incision lower down in the medulla oblongata, or in the medulla spinalis, other dilatations, besides the paralysis of the abdominal vessels, will occur, by which the distribution of the blood becomes modified; stagnation will be produced in the skin, or disturbances in respiration and alterations in the arterial pressure which create conditions of coolness. Accordingly, either these latter prevail, or the conditions of an increase of heat, and we have mixed results of an increase and of a diminution of heat. I believe I have been the first who, by partly neutralizing the loss of heat, has preserved alive the animals operated upon. The results obtained in this manner, though not yet sufficiently analyzed, show, however, that we have neither a reason nor a right to claim the superior part of the medulla spinalis or the bulbus, as special heat producing centers or as centers for the moderation of heat. There might, however, exist in the organism, without our being able to demonstrate its existence, at least for the present, a center which moderates the heat, not in the sense of Tsciecuscin, a center which impedes an excessive production of heat, but a central point on which the sensation of excessive heat acts, whether it be produced by or introduced into the body; a point in which the nervous elements would share, which excite the whole mechanism for the absorption of heat or for its decrease. This would be a hypothetical center of co-ordination, the existence

of which it would be difficult to prove with the means at present in use in our Italian laboratories.

The centers of co-ordination are those tracts of the central nervous system in which a reflex action operates on a sum or a complexity of moving forces, in order to make them co-operate systematically for the production of a compound effect which corresponds to the wants of the organism. We have in these centers, if it is allowable to use this expression, a knot which unites in itself different threads which can be pulled contemporaneously or in regular succession. These centers are the most important in the animal economy, and many must exist in the cerebrum. It is probable that every complex movement, which is the regular consequence of certain sensations, has its co-ordinating center, so, also, the different expressions which accompany the passions. There seems to exist a center for vomiting and for deglutition. That we know of a few only of these centers is on account of the difficulties which are inevitably connected with the methods of recognizing and determining them. The indispensable condition for the purpose of recognizing such a center is, that we are able to isolate it and destroy it. The effect of the local irritation does not prove in any way the existence of such a center, and this for two reasons:

1. The effect of an irritation may depend as well upon the irritation of centripetal conductors as upon the irritation of a center claimed to be excited. Thus, for instance, the direct irritation of the medulla oblongata intended to exhibit an effect on respiration, does not exhibit another effect by an analogous irritation of the sensitive nerves which here enter, especially the pneumogastric.

2. We know that the true central parts of the motor and of the sensitive nerves are distinguished from their roots by the circumstance (at least in the medulla spinalis,) that they are not excitable by our artificial means of irritation. The galvanic or mechanical irritation of these central nerves produces neither a movement nor a sensation. Therefore the true centers in the medulla and in the bulbus are not excitable, and this seems also to be the case in the cerebrum.

If, now, in the experiment mentioned from the irritation of the bulbus, there results an effect upon the respiration, it is most probable that this effect is due solely to the roots of the sensitive nerves which enter into the medulla, and not to the center. From the effect of the irritation we can never decide whether the bulbus is the co-ordinating center of respiration, or whether it only

contains the excitators, without producing in them any central or reflex action. We know in what manner the existence of the co-ordinating centers of respiration has been discovered and demonstrated by Legallois and Flourens, and how, later on, we have been able to prove that this center is double, one for each half of the body. The confirmation of this was the last scientific work in which Flourens was engaged. More recently Rokitsky (junr) has observed that in animals in which he had augmented the reflex action by moderate doses of strychnine, after division of the medulla oblongata, there can be produced movements and a series of inspiratory contractions of the diaphragm, and I have seen the same phenomenon without employing the strychnine, so that after considerable artificial respiration there may be an accumulation of carbonic acid in the blood. These facts furnish another proof that the medulla oblongata is not the only place from which an inspiratory impulse is induced, but that it contains the co-ordinating tracts for diverse respiratory movements.

There is another co-ordinating center in the pedunculus cerebri, which in different animals seems to set in action the muscular groups which serve to change the direction of the progressive movement by producing a deviation in a lateral direction. This can very well be recognized in rabbits and in other mammalia, which are generally used for these experiments. When in these the pedunculus cerebri on the left side has been divided to its full height, we observe in all cerebral movements which are produced by sensual impressions, and not by reflex actions which originate directly from the sensitive nerves of the trunk, that those muscles predominate which serve the purpose of directing the body towards one side, viz, to the right. When the division has been effected in another animal exactly at the same height, but on the other side, it deviates in its movements entirely to the left. A division of the pedunculi on both sides always produces paralysis of the two muscular groups, and an uncertain oscillatory movement of the voluntary muscles, in consequence of which the animal often falls, swaying from one side to the other, because the lateral equilibrium can not be longer sustained by the influence of the cerebrum. A description of the phenomena has been given long ago. We have demonstrated how the cerebral paralysis of these groups of muscles must produce, during voluntary movements, that complexity of phenomena which Magendie has described under the name "*Mouvement de Manège*," and which had been observed already by Arneman in the last century.

It seems important that immediately in continuation with the irradiation of nerve fibers toward the hemispheres, there has been found a center for the direction of the general movements of the body, from one side to the other. But the muscles which are placed under the influence of this center may vary with the orders of the animals, according to the different mechanism of locomotion. This results from the fact, known long ago, that in fishes the division of the pedunculus cerebri produces a rotatory movement. Which of the groups of muscles in the human being would become paralyzed by a destruction of this center can not yet be decided. Another co-ordinating center for the rotation of the body in its longitudinal axis, and especially for the vertebral column, exists in the median peduncle of the cerebellum and extends decussating, not only into the substance of the latter, but also into the transverse fibers of the pons Varolii. A fourth co-ordinating center we know for the harmonic movement of the eye-balls around their antero-posterior axis, when the head is inclined towards the shoulder and when the longitudinal axis of the whole body moves in a lateral direction. This movement can be very well observed in human beings. Experiments made on cats have proved that the co-ordinating center of these movements is located in the posterior corpora quadrigemina.

Centers of arrest, as special centers, were first distinguished by Secienoff and after him by many authors. Such centers by their presence or by their activity, would impede or diminish the reflex action in another part of the central nervous system. As to the facts we do not need to discuss them. They are generally admitted, as it has been known for a long time, that the reflex action in one part of the center becomes more energetic, when we suppress another part of the center, and that an irritation which sets in action one part, diminishes the intensity of the reflex action in the rest of the central nervous system. But the idea expressed by Secienoff in 1863, that centers did exist, the sole function of which was the suppression of the vivacity of the reflex phenomena has not been generally admitted. It seems to me that the explanation which I gave in 1858, in my work on physiology of the nervous and muscular system, is more in conformity with the facts known than the hypothesis of the existence of special centers of arrest. On the other hand Herzen, in 1865, after the publication of the first work of Secienoff, has given a critical and experimental review relating to the facts in question, and I can not do better than to remind the reader of the work of

Herzen, since all the facts which were afterwards furnished by the defenders of the centers of arrest, have not decided the question in favor of their opinion. Although we can not admit the existence of special centers for the arrest of reflex movements, viz.: centers which arrest the action of another part of the nervous centers, we can no longer deny the existence of centers of arrest for certain peripheric movements. Since by a new series of experiments on the arresting nerves, it has been demonstrated that such nerves really exist and that we have reason to regard certain fibers of the pneumo-gastric, as arrestors of the movement of the heart, we must admit, that that part of the medulla in which the cardiac branch of the vagus is excitable in a reflex way, is a center of arrest for the heart. If it is true, as many believe, that the systole of the heart is a reflex action produced by ganglia in the heart, and that the fibres of the vagus exert their action on this reflex mechanism, then the centers in the medulla oblongata, which arrest the heart, would be only centers of arrest for a reflex action. But we have proved long ago that the fibers of the vagus in the heart must act directly on the muscular fibers, and not by means of a reflex mechanism, and no one has ever attempted to show that our proof was in any way insufficient. We have, therefore, the right to distinguish the arresting peripheral centers, which really exist, from the supposed inter-central centers of arrest.

II.

ON THE SO-CALLED MOTOR CENTERS.

We have shown in the foregoing, that the idea of a motor center, as a privileged part, compared with the rest of the inter-cerebral and inter-spinal motor tracts, is not a necessity for the physiology of the cerebrum, and that it does not meet the wants of science. In order to prevent a misunderstanding, however, we must add that Hitzig has nowhere declared that he took his cerebral motor centers in that sense. It seems that Hitzig, if I understand him right, imagines that his centers in the grey cortex of the brain are to be considered as the points in which the psychological function, (the will,) acts upon matter and becomes a nervous transmission. Hitzig has not only in two different works spoken in this manner of his centers, but has also added the second time that he regards this in reality as one of the most useful results of his labors.

Abstractly from the spiritualistic flavor of such an explanation, we can not deny that there may exist in the centers determined points, in which the sensations are converted into motor actions. We can call these points centers. Thus far it seems to be a simple terminological question. But also in the medulla spinalis the motor excitations of the same muscles can be produced by sensitive excitations. These muscles, therefore, must have motor centers in the medulla. And these spinal motor centers, for each group of muscles must be very numerous, since at every point of the medulla a sensible irritation can become a motor impulse for the posterior extremities. This has been proved in a beautiful experiment by Van Deen, to confirm which we had an opportunity, after it had been renounced for a long time. An incision commencing at the posterior surface of the medulla and carried towards the anterior surface, sparing the anterior columns, at least for the greater part, will permit the transmission of reflex actions from a superior part of the medulla to parts inferior to the incision, but not in the opposite direction. At the same time the inferior parts of the medulla can also transmit reflex actions to the posterior extremities. When we change this experiment in different ways, which can easily be imagined, we arrive at the conclusion, that at every section, at least in every vertebral segment of the medulla spinalis, above the roots of the nerves of the posterior extremities, there are mechanisms which reflect upon the roots of the nerves of the extremities. And the reflex action can be transmitted from every point exclusively by the anterior columns, which conduct no other than motor impulses. Thus in every point of the medulla, every muscle of the posterior extremities must have its motor center. We can also say with great probability that these motor centers must be repeated at every height in the right and in the left half, in the anterior and in the posterior cornu of the medulla spinalis. Thus, before arriving at the medulla oblongata, a motor tract of one muscle must traverse and touch an innumerable quantity of motor centers; in the bulbus it must find another quantity, and still its cerebral motor center should be but one? This is not very probable, on the contrary, it seems to us that every conductor of movement from the point in which it enters in the first ganglionic corpuscles of the medulla spinalis up to its cerebral termination, represents a continuous series of such so-called motor centers, which exist in every point in which the conductor is in communication with the reflecting substance. This communication is effected by a dense net of the very finest

ramifications, as Gerlach has demonstrated, and which has been so well illustrated by Golgi.

A small point of this long chain of centers for each muscle, even if it is located in the cortical substance of the cerebrum, can but be of little consequence; and since the existence of a motor center is demonstrated only in this way, the claim of Hitzig can but lose something of its luster. In the foregoing, I, however, have done nothing more than translated an expression of a somewhat too spiritualistic nature into a language more familiar to physiology. All the rest is merely a strict consequence of this translation.

It is interesting, in more than one regard, to see whether such a cortical point is a point only in a chain of the motor centers, for one and the same group of muscles. In the first place it would be of importance to verify with Hitzig, that for each group of muscles not more than one limited point can be found on the surface of the cerebrum, which must be considered as a center. This would give an idea of the multiplicity of the apparatus located, side by side, in this cortex so uniform in appearance.

For the second place, it would be an interesting fact if the existence of such motor centers in the hemispheres of animals could be proved, although human and comparative pathology have stated with certainty that the motor centers do not extend above the base of the brain. This discordance is so great that the acknowledgement of this hypothesis would once more refute the theory of the unity of the fundamental plan of the cerebrum of animals and of men, and the application of physiological facts to pathology. This and other consequences would of course not come into consideration, if the existence of the centers had been proved. Let us see in what way this has been attempted. To decide whether a peripheral nerve is motor, we have to observe the effect of its division or of its irritation. Yet, the irritation may be effective and produce muscular contractions, after the nerve has been separated from all centers, while, still in communication with these, the irritation of a sensitive nerve may, in a reflex way, produce the same movements. The existence of a center in the medulla can not be proved by irritation, since we all know that the motor as well as the sensitive tracts, after they have entered the grey substance, lose their excitability by the electric current. But even if they were excitable from these points, we would not be able, from the contractions of the muscles which result, to decide whether the center of a motor or of a sensitive nerve had been ir-

ritated or the nerves themselves. The only method which ought to be adopted is that of isolating the center by division or of destroying it. This is more difficult in the medulla than some authors seem inclined to admit, and still more, evidently, in the cerebrum itself. If the destruction of a part of the central nervous system is followed by paralysis without sensitive disturbances or by sensitive disorders without paralysis, the interpretation would not offer any difficulties; yet who will decide the question in such cases whether a center has been destroyed or a tract? Yet, also, slight paralytic symptoms may emanate from disorders in the perception, which by itself must produce some irregularities in the movements, and who does not recollect how difficult it is to recognize the first traces of true paralysis in the course of locomotor ataxy?

In those cases in which the extirpation is not followed by a positive result, we must conclude that neither a tract nor a center of importance has been injured, at least not one of Hitzig's points in which the *soul* enters into action. The destruction or the extirpation of these cortical points has never produced a true paralysis; on the contrary, even the slightest paralytic symptoms are wanting, and the disturbances are solely of a sensitive character. It is by the effect of galvanic irritation that Hitzig claims to have demonstrated the existence of his cerebral motor centers!

The centers and the central fibers in the medulla spinalis, as well as its other parts, except the posterior columns and some fibers which continue towards the vaso-motor centers in the medulla oblongata, are not excitable by galvanic irritation. That the central fibers, which are not excitable in the medulla oblongata, should become so in the cerebrum may be possible but it is not probable. From the fact of their excitability we can not decide, whether they are central parts, or fibers which have still in the cerebrum preserved their peripheral nature and which act on their centers (perhaps very far off) in a reflex way. The fibers which ascend the medulla spinalis and oblongata without losing their excitability are those for the sensations of contact. They can still be found at the base of the brain, and very probably ascend into the hemispheres. They are the same fibers, of which, in my first experiments, I was not able to recognize a central termination, and it is my opinion, which I also expressed immediately after I had repeated the experiments of Hitzig and Fritsch, that it is the excitation of these fibers which produces in a reflex way the muscular phenomena, that have been taken as the result of the direct irrita-

tion of motor centers. I showed in 1873 by a series of experiments that they exhibit all the distinct characters of reflex movements; but the direct proof of their exclusively sensitive nature can only be furnished by the extirpation of these so-called motor centers.

III.

NOTES ON THE EFFECT OF LESIONS OF THE SO-CALLED MOTOR CENTERS.

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they attribute to this a perception of the position of the muscles and an important influence upon maintaining the equilibrium of their movements. This can not be proved.

In my opinion it is entirely unavailing to ascribe to the organism a new quality, hitherto unknown, in order to explain facts which can be fully explained by modifications already admitted in science. There is not one phenomenon in these disturbances which could not result from the loss of the sensation of contact in the extremity on the side opposite to the extirpated so-called motor center in the cerebrum.

The experiments of Vierordt have shown how important in men the sensation of contact in the plantar surface is for the regularity and the equilibrium of the movements. I have repeated those experiments in dogs by cooling the feet up to the tibio-calcaneal articulation in order to render the sensibility obtuse, and I have obtained the same phenomena of disturbance which were observed after the extirpation of the corresponding so-called motor center in the cortex of the cerebrum. In these experiments the muscular activity was not diminished.

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Another experiment has been many times repeated on three young dogs, which I had kept alive a long time after the extirpa-

tion of the so-called center for the left posterior extremity. These dogs frequently amused themselves in chasing bits of paper carried away by the wind. A feather was fastened to a cord and placed before them. They tried to catch it and played with it in the usual manner; when the feather was pulled back they looked for it, and when it was lowered down on their back or shoulder, or touched the right thigh, they felt it at once and made suitable movements to seize it with the mouth or the paw. This was not the case when the feather touched the thigh, or the tibia of the left side, the animals did not notice its presence at all, even when they were still searching for it, but, when it was raised to the back they immediately turned their head to the left side. Another proof of the existence of a certain cutaneous anæsthesia was manifested in the behavior of the animals operated on against parasites of the skin, which were without comparison more numerous on the parts of the body corresponding to the cerebral lesions. This reminds me of the enormous accumulation of *Goniocotes* and *Lipeurus* on the body of birds after the extirpation of the two hemispheres of the cerebrum.

From these facts it can not be questioned that the destruction of the so-called motor centers produces a certain cutaneous anæsthesia, and it is evident that this anæsthesia suffices to explain the concomitant muscular phenomena. To those, however, who still believe in the motor nature of those centers, the following experiment will be of interest, which, in 1872, I executed many times: In a young and healthy dog I destroyed the centers for the two extremities of the left side. After two or three weeks, when the characteristic phenomena were well marked, the animals were again etherized and I divided the right posterior columns of the medulla at the level of the last costal vertebra. After the healing of the wound the animals were again in perfect health. Nobody, who did not know it, could decide, after the most minute examination of the muscular phenomena in the extremities, on which side the cerebrum and on which the medulla spinalis has been injured. Only a short time after the operation on the side of the lesion in the medulla a hyperæsthesia to pressure was recognized. In another dog, after the destruction of the famous center on the right side of the cerebrum, the right posterior columns of the medulla were divided. After the hyperæsthesia had disappeared no modification in the phenomena could be noticed from the latter operation.

We know from pathological evidences in man the symptoms following a destruction of the posterior columns of the medulla;

experiments on dogs have given analogous results. Whether the famous cerebral centers in dogs are the same in human beings we do not know with certainty, but it is my opinion that lesions of those points, which correspond physiologically, would produce a species of locomotor ataxy; Hitzig and his followers would expect a *psychomotor* paralysis. It is true the locomotor ataxy to which I refer has not yet been found in cases in which an autopsy has been made, but every one who knows the history of this disease and who is aware of the relations between pathology and physiology will not be surprised by this fact. Traces, however, of a cerebral locomotor ataxy are not missing in clinical annals.

It has been said in the foregoing that the symptoms of a destruction of the cerebral centers of Hitzig can not be distinguished from those of a division of the posterior columns of the spinal medulla. This refers only to the symptoms observed during the physiological life. There exist differences when the animal is under the influence of small or moderate doses of strychnia or thebaine. If in such cases the posterior columns of the spinal medulla on one side (let it be the right side) are divided, the very slightest excitation of the sole of the left foot induces a tetanus. This is not so on the right side, it wants a considerable pressure to produce the same effect. If on the other hand in such a case the so-called cerebral center has been destroyed on one side there will be no difference in the two extremities, the tetanus will be as readily produced by an irritation of the one sole as of the other. If we operate on an animal which has on the right side a cerebral and on the left a spinal ataxy, the tetanus will be induced by an excitation of the left and not of the right sole. This is also the case when the tetanus has been produced by thebaine, of which, however, relatively larger doses are required. If the doses are too large the difference mentioned is only remarkable in the first period of the poisoning, it becomes gradually more slight and disappears before death. The difference explains itself when we consider that in both cases of poisoning the first reflex action, which produces the tetanus, originates neither in the cerebrum nor in the spinal medulla, but in the medulla oblongata, from which it propagates downward into the spinal medulla.

NEW ENGLAND PSYCHOLOGICAL SOCIETY.

The New England Psychological Society held its quarterly meeting in September last, at which the chairman, Dr. Earle, of the "committee to prepare and submit to the next meeting a method for the trustworthy reporting of recoveries," reported progress, which led to an informal discussion and a recommitment of the subject to the same committee.

The subject for discussion, "What is the best method of supervising institutions for the insane by authorities superior to the Superintendent," was brought up, and after an interesting exchange of views further consideration was postponed to the next meeting.

The annual meeting of the Society was held at Worcester as usual, upon the 11th of December, and officers for the ensuing year were chosen. Dr. J. P. Bancroft was elected President; Dr. H. M. Harlow, Vice President; Dr. B. D. Eastman, Secretary and Treasurer.

The retiring president, Dr. Tyler, addressed the Society upon the subject of the general paralysis of the insane, or paresis, citing particularly the experience he had had as a Superintendent of institutions for the insane, and as a practitioner. As a Superintendent the cases which came under his observation had all become sufficiently insane to require hospital custody, and all hope of recovery had past, but since leaving the McLean Asylum he had seen several cases which presented all the symptoms of the early stage of general paralysis, improve so decidedly under treatment that he had debated in his mind whether it was possible that in the early stages this disease was curable. One man, with well marked tripping of the tongue, etc., had come

voluntarily and alone to consult him, because, as he said, if he went to these other doctors they would call him crazy and send him to the Asylum. This man had improved and resumed business. The discussion elicited by these remarks was very interesting. Several members had seen very remarkable cases and very marked remissions in the disease, one notable one in which the mayor of a city had for a time resumed his official duty, but none had seen a case of real recovery. This subject was afterwards designated for discussion at the next meeting.

Dr. Earle, from the committee on the method of trustworthy reporting of recoveries, submitted the following preamble and resolutions, which were unanimously adopted:

" *Whereas*, the method generally heretofore pursued in reporting the recoveries of patients at the institutions for the insane has, by its avoidance of a definite statement of the repeated recoveries of the same person, in cases of periodical or recurrent insanity, been largely instrumental in imparting to the general reader, and particularly to persons outside of the profession who are specially interested in the subject, an erroneous opinion of the curability of persons afflicted with mental disorder, and

" *Whereas*, as a result of that erroneous opinion computations have been made in political and social economy, based upon an assumed proportion of curables among the insane which is evidently far too large; and

" *Whereas*, the attainment of truth, and not the dissemination of error, is the true object of all statistical science; therefore

" *Resolved*, That in the preparation of published reports this Society recommends the adoption of some method by which that erroneous opinion may be corrected, and in the future prevented.

" *Resolved*, That without prescribing or suggesting a definite formula, it is recommended that a clear exposition should be made of the facts in relation to the following points:

" 1st. In regard to patients admitted in the course of the year; the number admitted for the first time, and the number of readmissions, specifying the number who have been received twice, thrice, four, and any greater number of times; and also the num-

ber who had previously been discharged recovered, specifying likewise the number who had recovered once, twice, thrice, and any greater number of times.

"2d. In regard to patients discharged in the course of the year; the whole number of recoveries, specifying the number of those who recovered for the first time, as well as of those who recovered for the second, the third, the fourth, the fifth, and any time still higher in the scale of numbers.

"*Resolved*, Furthermore, that the true import and value of the statistics of any institution for the insane can be attained in no way other than by an analysis of the results, in which are shown not alone the number of persons who recovered once, but the number of those same persons who recovered twice, thrice, four, five, or any higher number of times; and that any collection of statistics which has not been subjected to such an analysis is of comparatively little value."

The subject for discussion, "What is the best method of supervising institutions for the insane, by authorities superior to the Superintendent," elicited an interesting exchange of views held by the members as well as of the laws and customs which obtain in different States; but no formal resolutions were passed, the subject being indefinitely postponed.

In the wide range given to the discussion some curiosities in legislation touching legal protection of the insane were noticed by Dr. Bancroft. In the State of New Hampshire there is one State Asylum for the insane, at which a large majority of the patients, something less than three hundred, are private or self-supporting. The law provides with admirable care for the protection of its patients, and rigidly guards against improper committals. Twelve trustees, appointed and commissioned by the governor and council, are required to watch over its interests, and some one of this board must visit and inspect the Asylum twice at least in each month without previous notice, and give every patient who wishes it the opportunity to make state-

ments to them privately. All letters written to the trustees by patients must be forwarded by the Superintendent without inspection. The Governor and Council, President of the Senate, and Speaker of the House are constituted *ex-officio* a Board of Visitors, and are required to examine into its condition and report to the Legislature. In addition to this the Senate and House each has its committee to examine into its affairs at each session of the Legislature. The law provides that no person shall be admitted as a patient without the certificate of insanity of two physicians after a personal examination within one week; and the respectability of the physicians and the genuineness of the signatures are to be certified by a public official. The law further requires that a competent physician shall be in immediate charge. So far as the State Asylum is concerned these wise and humane provisions are in constant force, but here the protective legislation ceases. There are in the State at least seven other asylums, mainly occupied by the insane poor, and accommodating probably a larger number of insane persons than the State Asylum. These are connected with the County Almshouses, but in some instances are open to others than paupers, and no law prevents their being so to any extent. The Legislature has, so far, overlooked this considerable insane population, and provided for them no protective legislation. No legal conditions for admission to these institutions are fixed; no legal obstacles are in the way of the committal of any person alleged to be insane, on an agreement with the overseer; and no resident physicians are required. There is no provision for their inspection by State authority, nor any authorized channels of information as to whether commitments and care are conformable to the humane principles recognized in the laws applying

to the State Asylum. This discrimination between the pauper insane and those of other classes, leaving the former without the special protections, which the loss of reason calls for, while providing them so watchfully for the latter, seems an eccentricity of legislation difficult to account for.

B. D. EASTMAN,
Secretary and Treasurer.

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NEW HAMPSHIRE. *Report of the New Hampshire Asylum for the Insane*: 1876. Dr. J. P. BANCROFT.

There were in the Asylum, at date of last report, 279 patients. Admitted since, 119. Total, 398. Discharged recovered, 36. Improved, 38. Unimproved, 27. Died, 17. Total, 118. Remaining under treatment, 280.

Dr. Bancroft's remarks upon the medical and moral treatment of the insane in institutions, show a comprehension of the subject and an appreciation of the means to be used and of the influences to be invoked to insure success. The ideal can be readily given in the form of statements of what is demanded, and the desire to attain perfection affords the best incentive to continued effort. This is fully realized, as also the imperfections existing in practice. To lessen, and, so far as practicable, to overcome these is the daily problem and labor of the conscientious officer. To approximate the perfect ideal of what an asylum should be, remains as the limit of human progress and effort in this direction. "Necessity then keeps us sufficiently below our ideal to afford a perpetual stimulus to struggle with the internal difficulties of the situation." During the year, through the kindness of his Board of Trustees, Dr. Bancroft enjoyed the advantage of a trip abroad. He has presented a general summary of what he there observed, in the building and conduct of asylums, in the way of comparison with what he was familiar with at home.

Improvements, both within and out of doors, have been made during the year. The most important are the remodeling and enlarging of the service rooms of some of the older wards, and arranging hospital rooms so that the friends of patients can assist in nursing when desirable, and the sick can be isolated from the general wards.

Several acres of farm lands have been reclaimed and made productive by drainage and by mixing sand with the clay surface.

Report of the Board of Auditors appointed by the Governor and Council to inquire into the general financial transactions of the New Hampshire Asylum for the Insane; made to the Legislature June, 1877.

This report covers two general topics, the financial transactions and the treatment of the insane; it was not instigated by any charges either general or specific against the management. From the report, the investigation was made thorough and exhaustive, and embraced the period from 1870 to the present time, with a view to determine first, whether the management was *honest*, and secondly, whether it was economical. The conclusion reached is that the financial affairs have been honestly managed, and the board was unable to discover wherein there could be a reduction of expenses without a corresponding diminution of the benefits expected to be derived. As regards the treatment of patients, the report is equally satisfactory. Special inquiries and investigations were made respecting the sanitary condition of the Asylum, the medical and moral treatment, the dietary, the use of restraint and the general care of patients. The public are assured that good care and kind treatment are given to the inmates intrusted to the charge of the Institution. The

exhibit is such as to encourage the officers to continued exertion, and the people to increased confidence in the management of an institution founded and supported by public benevolence.

CONNECTICUT. *Report of the Retreat for the Insane: 1876.* Dr. H. P. STEARNS.

There were in the Retreat, at date of last report, 140 patients. Admitted since, 92. Total, 232. Discharged recovered, 33. Improved, 23. Unimproved, 27. Died, 11. Total, 94. Remaining under treatment, 138.

Some cases presenting features of unusual interest are presented in the remarks upon admissions and discharges. The percentage of recoveries is 35.8 upon the admissions of the year. The deaths calculated upon the number of patients under treatment is but 4.7. Dr. Stearns discusses the question of "governmental supervision of the insane." He speaks in favor of the plan in operation in England and Scotland, but shows the impossibility of its adoption in this country in the form which alone has contributed to its success abroad. The objection to the establishment of a commission of lunacy is inherent in the formation of the general government of the United States, and must be, so long as each State is guaranteed the right of regulating its own internal affairs. Whatever is done in this direction must be done by the States individually, but no one State has a sufficient number of asylums or of inmates to render it possible to carry out fully the plan proposed. The State of New York is noticed as having the largest field for the operation of the commission. The Doctor, however, ignores the fact that this alone of all the States has now, and has had for several consecutive years, a Commissioner in Lunacy, under whose administration the best and most perfect lunacy law in

existence in the country has been passed and is now in successful operation ; a law which guards both the interest of the patient and that of the public, and which will compare favorably with that of any country.

In other States the experiments have been made of appointing boards of commissioners, but from the small number of asylums, or from causes inherent in the boards themselves, they have proved a failure. The work of supervision has been relegated to State Boards of Charity or directly to the people. Such arguments as the Doctor presents, coupled with the experience of States where the trial has proved such a complete failure, ought to silence the clamor of the few who demand such impracticable schemes.

An appendix accompanies the report showing the statistics relating to readmissions, a subject which has attracted considerable attention among some of the superintendents of the New England asylums.

MASSACHUSETTS. *Report of the Boston Lunatic Hospital: 1876.*
Dr. CLEMENT A. WALKER.

There were in the Hospital, at date of last report, 203 patients. Admitted since, 25. Total, 228. Discharged recovered, 7. Improved, 3. Unimproved, 2. Died, 24. Remaining under treatment, 192.

The Doctor gives a brief historical view of the changes which have occurred during the 25 years the Hospital has been under his management. This includes a reference to the changes in the building, to its appointments and furnishing, to the advances in moral and medical treatment, to the increase in the number of employes, and in the many physical comforts for patients and those engaged in their care.

NEW YORK. *Report of the New York City Lunatic Asylum, Blackwell's Island: 1876.* Dr. R. L. PARSONS.

There were in the Asylum, at date of last report, 1,233 patients. Admitted since, 478. Total, 1,711. Discharged recovered, 159. Improved, 53. Unimproved, 39. Not insane, 4. Died, 97. Total, 352. Remaining under treatment, 1,359.

The report is largely occupied by a statement in detail of the improvements made during the year. These consist of an enlarged dietary, increase in the supply of clothing, the employment of additional subordinate officers and attendants, the erection of three pavilion wards, the substitution of paid helpers in place of the inmates of the workhouse, the construction of roads, filling up of marshes, and the preparation of a bathing house. The great need of the asylum is that of increased accommodation. A table of the probable increase in the number of patients during the next five years, drawn from the average percentage of increase for the past ten years, shows that in 1881 there will probably be 2,172 insane women patients to be provided for at public expense. There are now in the asylum 1,359 patients. These figures are given to forewarn the public and the authorities of what must be done in the immediate future in the way of provision for this dependent class.

VIRGINIA. *Report of the Virginia Eastern Lunatic Asylum: 1877.* Dr. H. BLACK.

There were in the Asylum, at date of last report, 303 patients. Admitted since, 75. Total, 378. Discharged recovered, 39. Improved, 6. Died, 31. Total, 76. Remaining under treatment, 302.

To relieve the present crowded state of the house, and to provide accommodations for applicants for ad-

mission, Dr. Black recommends the passage by the Legislature of an act "authorizing the superintendents to grant leaves of absence for a limited period, say sixty days, to such patients as in their judgment could be confided to their friends willing to take them, and with authority to extend the same from time to time as might be found expedient." This course was pursued by Dr. Stribling and has been continued by Dr. Baldwin, his successor, in the Virginia Western Asylum. During the past twenty months the present superintendent, Dr. Black, has extended furloughs to forty-three patients, and, as is claimed, with beneficial results except in two cases. The next recommendation is for an act authorizing the Board of Directors to provide homes for such of the chronic insane as the superintendent may recommend as being harmless and incurable, and to pay for their care and maintenance such compensation as may be agreed upon not to exceed \$150 per annum. The arguments in favor of this course are presented at some length, and the case of Gheel is cited as showing the workings of such a system. It is computed that in this Institution at least 85 might be thus disposed of and an equal number might be received from those who are now retained in the jails of the State.

A division of the State by counties into two districts, it is thought, would prove advantageous and economical in saving expense in transportation. A table is given showing the amount of labor performed by patients in the Asylum, and the percentage of those employed to the whole number. This for the men amounts to 58.7 per cent., and for the women to 59. Improvements have been made which increase the light and ventilation in certain portions of the Asylum, and thirteen additional beds have been provided.

VIRGINIA. *Report of the Virginia Western Asylum: 1877.*
Dr. R. F. BALDWIN.

There were in the Asylum, at date of last report, 356 patients. Admitted since, during biennial period, 137. Total, 493. Discharged recovered, 68. Improved, 15. Unimproved, 3. Eloped, 1. Died, 45. Total, 132. Remaining under treatment, 361.

Upon the subject of curability of insanity, Dr. Baldwin furnishes additional proof of the importance of early treatment, in a table giving the percentages of recoveries in cases admitted to the Asylum. This shows that in cases placed under care, of less than one month's duration, 80 per cent. recovered; under three months, 62.2 per cent.; under six months, 56.5; under twelve months, 47.; one year or over, only 16 per cent. recovered. The use of mechanical restraint under proper regulation and restrictions is advocated. He reports 347 applications for admissions rejected at both the State asylums, and not subsequently admitted, since 1874. The financial condition of the Asylum is certainly favorable, as there is a balance of \$10,000 now in the treasury.

VIRGINIA. *Report of the Central Lunatic Asylum: 1877.* Dr.
RANDOLPH BARKSDALE.

There were in the Asylum, at date of last report, 234 patients. Admitted since, 46. Total, 280. Discharged recovered, 37. Improved, 1. Not insane, 1. Died, 12. Total, 51. Remaining under treatment, 229.

The system of discharging patients upon probation has been introduced, and under such limitations as have been used it is pronounced a success. The use of restraint, under constant direction of the medical officer, is found necessary and sustained in the report. A defi-

ciency of nearly \$3,000, due to the failure of the State Treasurer to pay in full the amount of the annual appropriation, is reported.

PENNSYLVANIA. *Report of the State Lunatic Hospital, Harrisburg: 1877.* Dr. J. CURWEN.

There were in the Hospital, at date of last report, 416 patients. Admitted since, 159. Total, 575. Discharged recovered, 27. Improved, 34. Unimproved, 35. Died, 32. Total, 128. Remaining under treatment, 447.

The trustees report improvements in the building. New floors have been laid, bay windows made in the center of the wards, and the small ones at the ends greatly enlarged, the walls have been painted and adorned with pictures. All of these changes have added much to the cheerful appearance of the wards, and to the happiness and comfort of the inmates. Dr. Curwen's report consists of an analysis of the admissions and the causes operating to increase the number of chronic insane under treatment in the Asylum.

WASHINGTON, D. C. *Annual Report of the Government Hospital for the Insane, Washington, D. C.: 1877.* Dr. CHARLES H. NICHOLS.

There were in the Hospital, at date of last report, 744 patients. Admitted since, 198. Total, 942. Discharged recovered, 83. Improved, 40. Unimproved, 2. Died, 52. Total, 177. Remaining under treatment, 765.

The most marked feature in the present report is the account of the overcrowding to which the hospital is subjected. The present buildings were intended to accommodate 563 patients, while at this date, June, 1877, 765 were actually provided for. This number is 202

in excess of its capacity, and the condition is growing worse annually. The retirement of Dr. Nichols from the charge of the institution, after a service of twenty-five years, is noticed and his success as a superintendent is spoken of in terms of high commendation.

CALIFORNIA. *Biennial Report of the Insane Asylum of the State of California: 1877.* Dr. G. A. SHURTLEFF.

There were in the Asylum, at date of last report, 1,302 patients. Admitted since, a period of two years, 615. Total, 1,917. Discharged recovered, 335. Improved, 81. Unimproved, 9. Died, 272. Eloped, 25. Total, 722. Remaining under treatment, 1,195.

The asylum at Stockton is the largest State institution for the care of the insane in the United States. It had its origin in 1853 by an Act of the Legislature, which dedicated all the buildings and appurtenances of the former State General Hospital at Stockton for the purposes of an Insane Asylum. At this time the erection of the buildings which constitute the present asylum was commenced. These have been increased in number and enlarged in capacity from time to time till the accommodations have reached the large figures given in the report. In 1850, fourteen insane persons were sent to the station house in San Francisco, and at the close of the year it was estimated that the whole number was twenty-two. During 1851, the State General Hospitals at Sacramento and Stockton cared for the insane, and, in 1852, 124 insane patients were received into the hospital at Stockton. In 1853, the whole number admitted to the then State Asylum was 160. The facts are recalled by Dr. Shurtleff in his report for 1876. The slight decrease in the number of patients is attributed to the opening of the new asylum at Napa. It is feared that even with these addi-

tional accommodations, the number of patients under treatment at Stockton will soon be increased beyond the former limit.

The most marked improvement recorded is the new water supply. The tank raised to the height of 50 feet upon a wooden trestle has been replaced by a brick structure. A tower 16 feet at the base, tapering slightly, which, at the height of 35 feet, holds an iron tank of 8 feet in diameter and at the top, an elevation of 51 feet, another tank of 11 feet in diameter has been erected. This is substantially built and gives satisfaction in its use.

CALIFORNIA. *Report of the Napa State Asylum: 1877.* Dr. E. T. WILKINS.

There were in the Asylum, at date of last report, 208 patients. Admitted since, 451. Total, 659. Discharged recovered, 140. Improved, 30. Unimproved, 18. Not insane, 23. Died, 49. Eloped, 4. Total, 264. Remaining under treatment, 395.

The report of the trustees is largely occupied with the detail of the financial difficulties under which they have labored. These have been numerous and the labor connected therewith perplexing and onerous. The final settlement in some instances awaits the adjudication of a court and further action by the Legislature.

The report of Dr. Wilkins touches upon the treatment adopted in the Asylum and the necessity of additional provision for the insane. In this connection, he recommends the establishment of a State almshouse for the reception of the chronic insane. The Institution labors under some serious disadvantages. The water supply is inadequate for all the purposes of the Asylum. The use of kerosene lamps is necessitated by

the inability to erect gas works, and there is need of additional outbuildings, barns, etc. Should the Legislature respond to the requests for appropriations, all of these wants will be speedily supplied.

WISCONSIN. *Report of the Wisconsin State Hospital for the Insane: 1877.* Dr. D. F. BOUGHTON.

There were in the Hospital, at date of last report, 354 patients. Admitted since, 144. Total, 498. Discharged recovered, 45. Improved, 21. Unimproved, 21. Died, 28. Not insane, 1. Total, 116. Remaining under treatment, 382.

The report is occupied almost exclusively with a recital of the needs of the Hospital in the way of repairs and improvements, as a basis for the appropriations asked from the Legislature and with an account of the improvements already made. The most important of these is the new water supply from the lake, which is now abundant in amount and of excellent quality, and furnishes, so far as is possible, a full protection against fire.

It is proposed to establish a large dairy of eighty-five cows, which will provide sufficient milk and butter for the institution. It is recommended that the gasoline works be replaced by arrangements for the manufacture of gas, as the former has been proved to be dangerous to life and to property from its liability to explode.

WISCONSIN. *Report of the Northern Hospital for the Insane: 1877.* Dr. WALTER KEMPSTER.

There were in the Asylum, at date of last report, 503 patients. Admitted since, 201. Total, 704. Discharged recovered, 40. Improved, 36. Unimproved, 49. Died, 42. Total, 167. Remaining under treatment, 537.

The Institution is now filled to the extent of its accommodations, and additional cases are only received by an exchange for those which are thought to be less troublesome. The subject of hereditary transmission and the interchange which takes place between consumption and epilepsy, and other of the neuroses, and insanity, receives attention, and some marked instances are recorded. To provide for the insane of the State it is proposed to enlarge the Institution, and a plan is presented. The improvements of the year, in the erection of new, and enlargement of the former outbuildings, the introduction of improved heating apparatus, the building of roads, the laying out of the grounds, give evidence of a large amount of labor performed.

Dr. Kempster has added to his report an appendix, treating of the legal relations of the insane. A history is given of views entertained upon the subject of insanity by the legal profession, and of the decision of the courts from the earliest English records, including recent decisions by American tribunals. He presents his own views regarding insanity, the mind, and mental operations in health and disease, and also the definition of terms employed in the study and investigation of the subject. He points out, and properly characterizes many of the incorrect theories regarding responsibility before the law, which have long prevailed among members of the legal and medical profession, and sustains the belief in the unity of the mind, and in insanity as a cerebral disease. A compilation of the laws of the State, relating to the insane, completes the report.

TRANSACTIONS OF SOCIETIES, REPORTS AND
PAMPHLETS.*Transactions of the International Medical Congress.*

The volume of transactions contains a full report of the proceedings and of the papers read before the International Medical Congress, which was held in Philadelphia in September, 1876, under the auspices of the Centennial Medical Commission of Philadelphia. The congress was held for six consecutive days, and the work was greatly expedited by divisions into sections, nine in number. Addresses were made daily before the whole number of assembled delegates, while papers were read and discussed in the various sections, and the conclusions adopted by each section were reported to the congress. The address and papers constitute a volume which has never been surpassed in the annals of medical science in America. They were contributed by the best minds in the profession, and represent the most scholarly and advanced views upon the various topics discussed. The most of them are from the pens of American authors. In commemorating the centennial year of the nation's history, many of the addresses refer to the progress in the different departments of medicine in America during the past century. That this is referred to with a feeling of pride and self-gratulation is natural and justified by the facts. It is a difficult task, and one which we shall not attempt to point out the merit of any single effort where there is so much that is good and valuable. There can be but one opinion of the work and of the congress, and that was expressed by all, both at home and from abroad, that it was a grand success—creditable to the nation and to the profession. Too much praise can not be accorded to the gentlemen of the city of Philadelphia

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and of the State of Pennsylvania, who contributed so freely and cheerfully in time and in means to promote the objects of the congress. To the president, Prof. Gross, to the officers, and to the efficient committee of publication, whose labor, though perplexing and arduous, was so well done, the thanks of the profession are due.

Medical and Surgical Reports of the Boston City Hospital:
1877.

The practice of utilizing for the benefit of the profession at large the labors of the comparatively few, who have the advantage of hospital practice, is now becoming quite general. Many of the reports of hospitals are valuable in that they serve to render more familiar, forms of disease which are comparatively infrequent, difficult to diagnosticate, or in which the best methods of treatment are still under question. Some of the most valuable medical literature of the day is to be found in these reports and in the transactions of the various medical societies. They make manifest the superiority of organized, combined effort over separate, individual labor. The report of the Boston Hospital is in some respects a notable work. It treats of a variety of surgical diseases, some of its articles being able monographs upon special subjects. It reproduces many of the most interesting cases which have been under treatment during the year. The description of the hospital is in itself a valuable article on hospital construction. It is beautifully and profusely illustrated, and put forth in a most attractive dress. The editors are Dr. David W. Cheever and Dr. F. W. Draper.

Third Biennial Report of the Board of State Commissioners for the general supervision of Charitable, Penal, Pauper and Reformatory Institutions of Michigan: 1877.

There are two insane asylums under the supervision of the Board, one at Kalamazoo erected in 1859, and the new one at Pontiac, which will be opened for the reception of patients in 1878. In 1873, \$400,000 was appropriated for its erection. It will have a capacity for 350 patients. The Commissioners say of it, that it "will present to the admiration of all beholders a wonderful exhibition of combined economy and ornamental structure, without a parallel in the institutions of any State," and further that "it is the expectation of the building commissioners that they will be able to complete the building for the amount appropriated." This is certainly high praise to be awarded to any institution and will necessarily subject it to the closest scrutiny of all interested in such structures. The statement can at present only be accepted in full faith of its truthfulness, and it is hoped that it may be verified after the building is completed. Of the Kalamazoo Asylum its officers and management, the Board speaks in terms of high commendation.

The number of insane in the State is given as probably 1,500, and accommodations will be provided for about 1,000 patients. This is thought to be ample for all who will apply for admission. An appendix is added to the Report giving an abstract of the proceedings and papers read before the meeting of the county Superintendents of the Poor for the year 1876. Among them we find one by Dr. E. H. Van Deusen, Superintendent of the Kalamazoo Asylum, upon "State provision for the Insane." In this the duty and action of the State regarding the care of the insane is treated of in its legal and economic aspects, and valuable sugges-

tions are made, as to the direction and scope of efforts to improve the condition of the insane and to lighten the burden of their care to the State. A description of the various institutions, under the care of the Commissioners, their objects and their mode of conduct fill out a highly interesting report.

On Crime and Insanity. By JOSEPH WORKMAN, M. D., late Superintendent of the Toronto Asylum. [Read before the Meeting of the Canada Medical Association.]

Dr. Workman reviews the cases in which during the past two or three years he has been called as an expert. These were trials for the crime of murder in which insanity was interposed as a defence. Circumstances occurring since the trials, have furnished in some cases absolute, and in others strongly confirmatory proof of the correctness of the views expressed. These facts he presents before the Association in an admirably prepared paper, which does him great credit and will certainly please his large circle of friends.

Mental Hygiene for the Pupil and Teacher. A Lecture delivered before the Normal School at Chapel Hill, North Carolina, August, 1877. EUGENE GRISSOM, M. D., LL. D., Superintendent of the North Carolina Asylum for the Insane.

This address of Dr. Grissom has received high encomiums from both the medical and secular press. It exhibits considerable research in the number of gems from the best authors, regarding the influences most conducive to mental health and strength, and the proper methods of training the youthful minds. It is presented in the Doctor's most attractive style, with which, however, our readers are already acquainted.

1878.]

Bibliographical.

The Influence of Alcohol. WILLIAM M. COMPTON, M. D., Superintendent of the Mississippi State Lunatic Asylum. [From the Report of the Mississippi State Board of Health, December 1, 1877.]

The subject is treated under three heads: 1, Alcohol as a food; 2, Alcohol as a medicine; 3, Alcohol as a cause of disease. It is a full and interesting report of the mode of action of spirituous liquors upon the circulatory and nervous system of man.

General Index of the New York Medical Journal, from 1865 to 1876.

This is a neatly bound volume of 143 pages, and will be invaluable to those who have preserved files of the *Journal*, and to all who may have occasion to consult its pages.

Transactions of the Meeting of the Association of the Alumni and Officers of the Medical Department of the University of Buffalo for the years 1875, 1876 and 1877.

Lead Poisoning in Frogs. By JOHN J. MASON, M. D. [Reprinted from the *New York Medical Journal*, July, 1877.]

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CARE OF THE CHRONIC INSANE IN THE STATE OF NEW YORK.

RULES AND REGULATIONS, ESTABLISHED BY THE STATE BOARD OF CHARITIES, FOR THE GOVERNMENT OF COUNTY INSANE ASYLUMS, EXEMPT FROM THE OPERATION OF THE TENTH SECTION OF THE WILLARD ASYLUM ACT, AS PROVIDED BY CHAPTER 713 OF THE LAWS OF 1871.

Adopted October 16, 1877.

1. MEDICAL SUPERVISION.

The proper authorities of each and every such County Insane Asylum, in which the number of insane persons detained therein shall be less than one hundred, shall appoint a physician to such asylum, acceptable to the commissioner of the State Board of Charities of the district in which the asylum is situated, who shall be designated the visiting physician of such asylum, and who shall visit the wards and rooms, occupied by the insane of the institution, daily, and as much oftener as in his judgment the welfare and comfort of the insane may require.

In every such County Insane Asylum, where there are more than one hundred insane persons detained therein, the proper authorities of such county shall appoint a physician to such asylum, acceptable to the commissioner of the district in which the asylum is situated, who shall be designated the resident physician of such asylum, and who shall not only visit the wards and rooms of the insane daily, but whose whole time shall be at the service of said authorities as may be required. Said authorities are hereby required to erect or provide, as soon as the same can conveniently be done, suitable dwelling and office accommodations, in

order that the resident physician can reside with his family either in or contiguous to the asylum for the insane, unless the commissioner of the district deems that additional dwelling and office accommodations are not, in his judgment, needed.

The visiting physician or the resident physician so appointed, shall be the chief medical officer of such asylum, and shall have the medical supervision and treatment of all insane persons committed thereto, and he shall make requisition for, and have the control and distribution of the medical supplies, hospital stores, and other appliances, for the treatment of the insane in such asylum.

2. ATTENDANTS.

The proper authorities of each and every such County Asylum, shall appoint a properly educated chief male attendant and a chief female attendant, to be acceptable to the visiting or resident physician thereof, and the number of attendants in each and every such County Insane Asylum, for either sex, shall equal one to every twenty insane persons or fractional part thereof, exceeding one-half that number, in any ward of such asylum; provided that no pauper or other inmate of any poor-house or almshouse shall be appointed such attendant, and provided also that the appointment of such attendants shall be approved of by the visiting or resident physician of such asylum, and that they shall subscribe and agree to maintain the rules and regulations thereof.

3. DIET, CLOTHING, CLASSIFICATION, RESTRAINT, AMUSEMENTS, OCCUPATION, ETC., FOR THE INSANE.

The proper authorities of each and every such County Asylum shall, within three months, with the approval

of the visiting or resident physician thereof, and the written concurrence of the commissioner of the district in which the asylum is situated, establish rules and regulations, upon the following and such other points as they may deem advisable relating to such asylum, which rules and regulations, so far as practicable, shall conform to the rules and regulations now in force at the State Lunatic Asylum at Utica, viz:

1. As to the diet of the insane.
2. As to special diet for the sick and infirm.
3. As to the clothing of the insane.
4. As to classification.
5. As to the means of restraint, by whom and when to be employed, how long continued, etc.
6. As to amusements for the insane.
7. As to the occupation of the insane.
8. As to the duties of the attendants.
9. As to the duties of the chief male attendant, which are intended to include these now performed by the supervisors and third assistant physician at said State Asylum; and he shall also keep such records of number, condition and treatment of the insane under the direction of the visiting or resident physician, or proper authorities of the Asylum, as the Board of Supervisors, or the State Board of Charities may require.
10. As to the duties of the chief female attendant, which are intended to include those of the matron in said State Asylum, and such other duties as may be required.
11. As to the sanitary condition of the asylum building and grounds.

SUMMARY.

We are sorry to announce the resignation of Dr. J. F. Ensor, Superintendent of the Insane Asylum of South Carolina. Our knowledge comes through the published correspondence between Gov. Wade Hampton and Dr. Ensor. It seems that the appointment of Superintendent is made by the Governor, on the recommendation of the Board of Regents. The letter of Dr. Ensor, which is dated December 1, 1877, is largely a review of his administration and of the improvements in the Institution made during that period. It is certainly a very admirable showing, and does Dr. Ensor great credit. His successor is Dr. Peter E. Griffin.

—Dr. John H. Callendar has been re-elected Superintendent of the Tennessee State Asylum for the Insane located at Nashville.

—Dr. William W. Strew has been appointed to the position of Superintendent of the New York City Asylum for Women, on Blackwell's Island, vice Dr. R. L. Parsons resigned.

—Dr. John C. Hall has been appointed Superintendent of the Friends' Asylum, at Frankford, to fill the vacancy caused by the retirement of Dr. J. H. Worthington, who has taken up his residence in Baltimore, No. 395 Madison Avenue.

—Dr. T. Mortimer Lloyd has been appointed Second Assistant Physician at the State Asylum for the Insane at Morris Plains, N. J.

—The Worcester Lunatic Hospital at Worcester, Mass., has removed to the new building, which is situated about two miles from the Union passenger station. The location is represented as very desirable, having good drainage, freedom from noxious emanations, ample grounds and pure air. The valley of Lake Quinsigamond, surrounded by hills, dotted with farm-houses and villages, is as charming as many a celebrated foreign landscape, and affords most delightful rides and rambles. The old Hospital building has been used, since October last, in accordance with the statutory provision, as an Asylum for the Chronic Insane. It remains under the charge of the former Board of Trustees, who also have control of the New Hospital. Dr. John G. Park, the Assistant Superintendent of the Worcester Lunatic Hospital, has been appointed Superintendent, and Dr. Enoch Q. Marston, late Assistant Physician at the State Almshouse at Tewksbury, has been appointed Assistant Physician.

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EDITED BY

LYTTLETON S. FORBES WINSLOW, M. D., D. C. L.

Lecturer on Mental Diseases, Charing Cross Hospital

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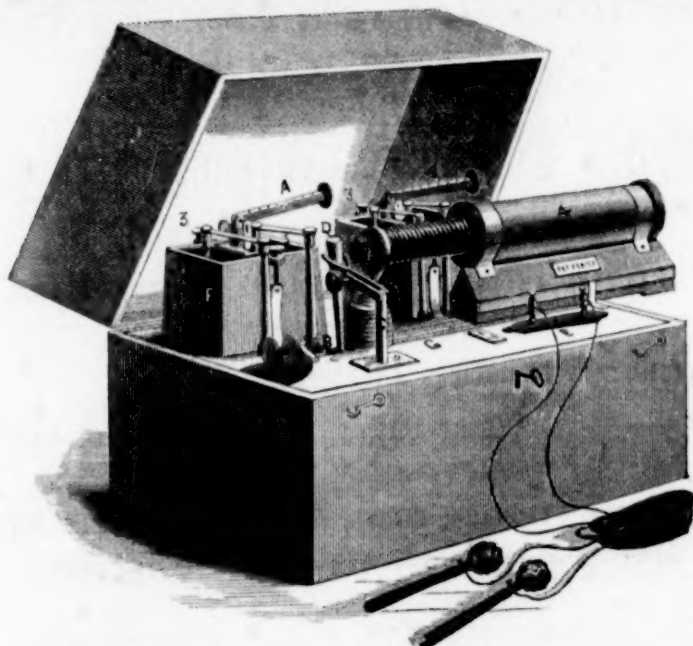
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